

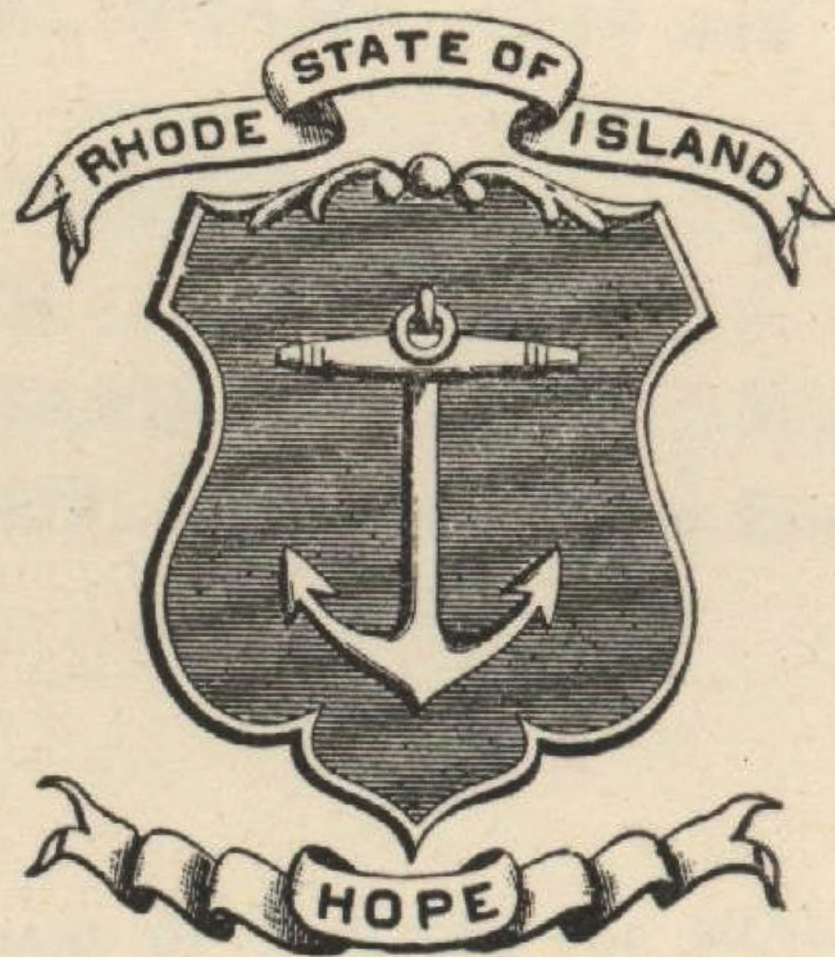
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Bulletin of Rhode Island State College

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FOR FEBRUARY 1921

REPORT OF THE BOARD OF MANAGERS



KINGSTON, R. I.

1921

PUBLISHED QUARTERLY BY THE COLLEGE
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ENTERED AT KINGSTON, RHODE ISLAND, AS SECOND-CLASS MATTER

RHODE ISLAND STATE COLLEGE

CORPORATION.

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REPORT

*To His Excellency Emery J. San Souci, Governor, and the Honorable
General Assembly of the State of Rhode Island and Providence
Plantations, at its January Session, 1921:*

I have the honor to submit herewith the Thirty-Third Annual Report of the Board of Managers of Rhode Island State College, as required by law.

WALTER E. RANGER,
President, Board of Managers.

REPORT OF THE PRESIDENT OF THE COLLEGE

To the Board of Managers, Rhode Island State College:

GENTLEMEN: I have the honor to submit for your consideration my official report for the year 1920.

PROMINENT FEATURES OF THE YEAR.

The outstanding characteristic of the year has been financial in nature, caused by the fantastic movements of prices. No budgetary arrangements with departments of instruction could be maintained. The only thing possible was to restrict all expenses to the lowest terms and to buy nothing that could be even temporarily delayed. The boarding department had to raise its board rate to the highest point ever reached, viz. \$6.50 per week, and even then the quality and variety of the food was not up to our usual standard. There was more discontent among the students with the boarding department than we have known in many years. It is a pleasure to report that at the beginning of the present quarter the board rate has been lowered to six dollars per week, and the food provided has become more satisfactory. This, of course has been made possible by the recent decrease in the cost of provisions. It is due our department to say that our board rate has never been as high as that at neighboring colleges, and the quality and quantity of the food provided has not been unfavorably comparable with that furnished at these neighboring colleges.

The enforced policy of deferring necessary purchases of apparatus, machinery, and supplies for the various departments of the college, carried out since 1916, practically, and especially during 1920, has seriously embarrassed the instructional work, has caused everywhere an appearance of neglect, and has increased discouragement among our professors and teachers. These conditions, however, they have only shared with other businesses and professions

throughout the state, and regarding the general economic situation causing these conditions as more or less temporary, we have looked forward hopefully to readjustment in the future. We have lost indeed, some of our best and most efficient men and women, but in the main our faculty have loyally and even cheerfully remained at their posts, and the work of the year has successfully gone forward. Students, too, have come to us in increased numbers, and if we can secure from the state the necessary support asked for, the future is exceedingly promising.

POLICY AND PLAN OF DEVELOPMENT HITHERTO PURSUED.

At this time it may be well to glance backward over the past fifteen years, and note the steady policy pursued, and its results. Fifteen years ago the college had an attendance of sixty-five college students. It had, also, a preparatory school numbering forty-six students of high school grade, and a twelve-weeks' course for special students enrolling twenty-four persons. Even with this small attendance, the housing and equipment capacity of the college was exceeded. The inventory value of all buildings was \$130,000, and there existed on the quadrangle only four permanent buildings. The total college income (not including the Experiment Station funds) from all sources was \$57,000. The income of the Experiment Station alone was over half that of the other college departments combined. Naturally, this division enjoyed a degree of respect and esteem among the people in which the college as a whole did not share. Students entered the freshman class with requirements equaling about two and one-half years of high school work, and even so a freshman class of thirty-five was a matter of congratulation. Evidently much, very much, in many directions, had to be done to place the college on a plane where it could give "a chance to the industrial classes to obtain a liberal education," as was specified in the national grants.

Fifteen years do not constitute a long time in the history of an institution, yet in that time much has been accomplished to enable the state to realize legitimate expectations from its Landgrant College. Let me point out the successive steps of development.

It was apparent, first of all, that living accommodations for stu-

dents must be created. Accordingly a dormitory and dining hall—the building which we call East Hall— was built, a substantial stone building, plain but of attractive lines standing on the east side of the quadrangle, and capable of accommodating some seventy-five students, beside providing a well-equipped kitchen and two cheerful and attractive dining-rooms. These accommodations were promptly filled with students the very first year that the building was opened. Provision for subsequent additions to the student body has been made by the student fraternity organizations without cost to the state. There are now seven of these organizations. Three of these have built their own houses; one has purchased a house, and three have rented houses for themselves. By these means the lodging of the present student body, 356 in number, is fairly satisfactorily provided for.

The next step was to provide suitable housing and equipment for the basal science departments, and this was done by the constructing and equipping of Science Hall, a handsome building of stone, standing on the south side of the quadrangle. It has raised the standing of our scientific work very materially.

In logical order, it seemed to be our next task to gather together the various divisions of the work of our Agricultural department, and house it in one building of sufficient size, adequacy, and dignity to compare somewhat favorably with the agricultural equipment of our neighbors, and to enable us to give sound and satisfactory instruction in this highly complex and fundamentally important branch of human industry. The carrying out of this step has been delayed for some four years by the advent of the Great War. But at this writing a fine stone building on the east side of the quadrangle is nearing completion and by September, we hope to have it completed and in use.

Meanwhile, other phases of college organization have been strengthened, as, for instance, the admission to the courses of high school graduates only, the enlarging and material strengthening of the instructional force, the addition of departments for the care of student health and the development of athletics, the enlargement of the work for women students, and the development of the Extension Service through federal funds.

To recount these steps of progress in fifteen years does not make

for impressiveness. The growth in attendance in fifteen years from 65 college students to 356 has about it nothing startling or spectacular. The addition of three buildings around the quadrangle, of the greenhouses, the power house, and an athletic house, *in fifteen years*, may indeed seem very slow enlargement. Yet they represent an advancement in prestige, in standing, in appreciation throughout the state, in power to meet the needs of the state for industrial education that is enormously in excess of the material ratios indicated and afford ground for sincere congratulation and thankfulness.

The policy throughout these years has been uniform. It has been to concentrate our effort and our strength on one division or department at a time and to bend every energy to the accomplishment of one aim until that was reached. One task accomplished, we have been able to concentrate on another. Naturally, this policy has provoked some criticism from those departments whose interests have necessarily been, not neglected, but yet not put in the foreground to the same degree as the one project then being carried forward. To have attempted to forward all interests at the same time, and to the same degree, would undoubtedly have resulted in accomplishing nothing. Necessarily, a choice had to be made, and that choice has been made; (1) in accordance with the urgency of the need; (2) with regard to the immediate effect in improving the standing of the whole organization; (3) with consideration as to the probability of a successful appeal to public opinion at the time; and (4) with due regard for the greater existing resources of departments already enjoying public confidence or support.

These considerations have had pertinency especially in regard to the Experiment Station. Because of previous fortunate circumstances, our Experiment Station has stood for long far in advance of other departments of the college. Its revenue, at one time amounting to over half of all the revenue accruing to all the other departments of the college, has remained constant and steady, coming as it does, from Federal sources and not being subject to demands from other interests. It has always had a building dignified and commodious, while other departments have been housed in most poverty-stricken quarters. It has had, and still has the use of a generously large part of the land belonging to the institution, and

the public demands on the time and energy of its personnel have greatly been reduced by the interposition of the Extension Service more recently established and maintained by new Federal funds coming through the Smith-Lever act of Congress.

In the effort, therefore, to bring up the other departments to a parity of standing with this most favored department, it has sometimes been insisted that the interests of the Experiment Station were neglected and imperiled. The foregoing detailed explanation of the policy that has been pursued is intended to allay any such impression, and to assure the public of the constant and fostering care of the college administration for all the interests committed to its management. As an evidence of this fact it may be stated that in the imperative exigency of funds for increasing salaries, whatever increases have been made possible by funds obtained from the state have been impartially apportioned to Station workers as well as to other college employees. At no time have they been deprived of the especial advantages they have enjoyed, and always their needs have had earnest consideration, and their work has been uniformly fostered.

What has been said with regard to the Experiment Station, applies with equal force to all other departments of the college. No department has failed to receive the most anxious thought and care. It is to be regretted that all departments cannot have new buildings, larger, and better facilities, and more funds according to a comprehensive scheme that could readily be drawn up; but we must work with conditions as we find them, and not as we would have them be.

ATTENDANCE.

The statement of last year's report to the effect that the attendance for that year was the largest in the history of the college, may again be repeated this year, the number being 356 as compared with 345 last year. So far as possible all applicants from this state were admitted, any failure to admit being due to inability to meet entrance requirements. The attendance from within the state is 85 per cent of the total, as compared with 83 1-3 per cent. last year. One pleasing feature of the present year's enrollment is the larger stability of student enrollment. During and since the war, atten-

dance has been more or less irregular and the percentage of new matriculates as compared with students matriculating in previous years has been very large. During the past year and the current year that percentage has been much reduced.

Territorially there has been a substantial gain in numbers from Providence County (202 as compared with 191 last year); from Kent (28 against 20 last year); and from Newport (27 against 21 last year). There has been a loss of one from Bristol County (13 as against 14 last year) and of seven from Washington County (32 against 39 last year).

TABLES SHOWING ANALYSIS OF ATTENDANCE.

TABLE No. I.

Showing Attendance by Classes During the Years from 1917-1921.

Classes	1916-17	1917-18	1918-19	1919-20	1920-21
Graduate Students	6	2	2	4	4
Seniors	38	25	32	41	34
Juniors	51	46	43	53	69
Sophomores	94	65	48	88	98
Freshmen	122	98	125	143	134
Irregular	8	7	5	3	11
Total, college courses	319	243	255	332	350
Two-year courses	17	8	..	10	6
Student Army Training Corps....	..	..	268	..	..
Total	336	251	523	342	356
Names repeated . . . . .	..	..	121	..	..
Total . . . . .	..	..	402	..	356
Two Mechanics Units . . . . .	..	..	515	..	..
Total	336	251	917	342	356

TABLE No. II.

Showing Number of Men and Women, of New and Previous Matriculates,
and Number in the Several Courses by Classes, for Collegiate Year
1920-21.

Class	Sex.		Date of Matriculation		Registration in Courses									
	Men	Women	Previous to 1920-1921	1920-1921	Agriculture	Engineering					Applied Science	Home Econ.	Education	Total
						Chemical	Civil	Electrical	Mechanical	Total				
Graduates	3	1	2	2	1	..	..	..	..	..	3	..	..	4
Seniors	27	7	34	..	8	2	4	7	3	16	4	5	1	34
Juniors	51	18	68	4	7	5	8	9	10	32	13	15	2	69
Sophomores . . .	80	18	98	..	14	8	7	23	16	54	13	17	0	98
Freshmen	112	22	8	126	18	..	..	..	..	78	17	21	0	134
Irregular	8	3	3	8	2	..	..	1	1	2	4	3	..	11
Total College	281	69	213	140	50	15	19	40	30	182	54	61	3	350
Two-Year	6	..	..	..	6	..	..	..	..	..	..	..	..	6
Grand Total	287	69	213	137	56	15	19	40	30	182	54	61	3	356

HOME RESIDENCE OF STUDENTS.

A. Resident outside of the State:

Connecticut:

Essex	1	No. Attleboro	2
Hartford	2	Orange	1
Mystic	2	Plainfield	1
New London	2	Sandwich	2
	—	Swampscott	1
	7	Three Rivers	2

Massachusetts:

Avon	1		39
Boston	1		
Bridgewater	1	New York:	
Brockton	15	Albany	1
Chatham	1	Brooklyn	1
Dorchester	1	Elmhurst	1
Everett	2	New York City	1
Fall River	1		—
Groveland	1		4
Haverhill	1	Ohio:	
Littleton	1	Granville	1
Lynnfield Center	1	Pennsylvania:	
Mansfield	2	Palmerton	3
Montello	1		—
Total attendance from without the state			54

B. Resident in Rhode Island by Counties and Towns:

Bristol County:

Barrington	1	Glocester	1
Bristol	7	Lincoln	6
Warren	5	Pawtucket	14
	—	Providence	116
	13	Smithfield	1
		Woonsocket	21

Kent County:

Coventry	3		—
East Greenwich	8		202
Warwick	4		
West Warwick	13	Newport County:	

Providence County:

Burrillville	6	Jamestown	2
Central Falls	3	Little Compton	3
Cranston	10	Middletown	1
Cumberland	6	Newport	19
East Providence	18	New Shoreham	1
		Portsmouth	1
			—
			27

Washington County:		South Kingstown	14
Hopkinton	3	Westerly	13
North Kingstown	2		—
			32
Total attendance from within the state			302

Entrance Statistics for Class Registering in 1920.

Total enrollment of class			134
Number received from high schools			126
Number re-classified and repeating work			8
			—
Number credited with fourteen units or more			102
Number credited with thirteen and a half units			7
Number credited with thirteen units			10
Number credited with twelve and a half units			4
Number credited with twelve units			2
Number credited with eleven and a half units			1
			—
			126
Total entering without condition			62
Entering with condition of one-half unit, required work			24
Entering with condition of one unit, required work			21
Entering with condition of one and one-half units, required work			7
Entering with condition of two units, required work			5
Entering with condition of two and one-half units required work			6
Entering with condition of three units, required work			1
Total with conditions			—
			64
Average age of men and women, Oct. 1, 1920			19 years, 1 month, 23 days
Age of youngest member of class, Oct. 1, 1920			16 years, 4 months, 21 days
Age of oldest member of class, Oct. 1, 1920			24 years, 8 months, 11 days

Schools Represented in Registration of Freshman Class.

In Rhode Island:		Providence:	
Bristol High	4	Classical High	2
Burrillville High	4	English High	1
Central Falls High	2	Hope Street High	1
Cranston High	15	Technical High	25
Cumberland High	8	La Salle Academy	1
East Greenwich Academy	5	South Kingstown High	3
East Providence High	5	Westerly High	4
Newport—Rogers High	6	West Warwick High	5
Pawtucket High	3	Woonsocket High	8
			—

In Connecticut:		In New Hampshire:	
Stonington High	2	St. Anselm College.....	1
In Massachusetts:		In Ohio:	
Brockton High	4	Piqua High	1
Everett High	2	In Pennsylvania:	
Fall River:		Philadelphia—Central High ..	1
B. M. C. Durfee High	1	Palmerton High	1
Littleton High	1		2
Lowell High	1	In Vermont:	
North Attleboro High	1	Vergennes High	1
Palmer High	1		
Sandwich High	2		
Stoughton High	1		
Taunton High	2		
Wakefield High	1		
	<hr/>		<hr/>
	17		126

FINANCES.

Notwithstanding the most rigid economy in all departments, the financial results of the year's transactions have been very unsatisfactory, in that a deficit has been created of \$15,294.06. The budgetary system of allotting to each department a definite sum from the funds of the college for its maintenance and development, has been rendered impossible by price advances and by their uncertainty. The only possible way of handling affairs during the year, has been to determine each expenditure, not on the basis of whether it was advisable and needed, but whether it was possible to continue operations from day to day without it. It is desirable to return to the departmental budget system as soon as possible, in order that the responsibility for departmental efficiency and organization may again be placed within limits of course on the heads of the departments, so that they may utilize their expert knowledge, and the college may reap the benefit of departments efficiently organized and functioning.

The deficit itself, however, can almost entirely be accounted for in the item of fuel. The coal bill of 1920, is greater than that of 1919, by \$13,046.36. This is due (1) to greatly increased price, and (2) to larger quantity bought. Coal contracted for, could not be delivered until November and December. Meanwhile, immediate need and uncertainty caused the purchase of large quantities of

coal wherever it could be obtained. Anthracite coal averaged in 1919, \$10.90, delivered on the college grounds; in 1920, the average price so delivered was \$16.10. Bituminous coal cost in 1919, \$7.10 per ton; in 1920, it cost \$10.94. The college has now on hand (January, 1921,) some four hundred and fifty tons more of coal than it had in January, 1920. In addition to the coal bill, our expense for labor exceeded that of 1919, by \$4,281.33. Neither of these increases could be foreseen before the opening of the year or avoided when the crisis arrived. That the year was full of just such disagreeable surprises, not only to us, but also to our neighbors in New England, and indeed to state institutions far and wide over our country, is shown in the deficit column of statistical tables given further on (tables compiled from reports made in December to the U. S. Bureau of Education at Washington.)

COMPARATIVE ANALYSIS OF EXPENDITURES AND RECEIPTS,
AND ESTIMATE FOR 1921.

TABLE I.

ANALYSIS OF EXPENDITURES.				
	Average for Three years			Estimate
	1915-17	1919	1920	1921
Advertising	\$817.65	\$580.55	\$130.75	\$900.00
Apparatus	1,610.65	2,304.30	3 671.80	4,000.00
Auto and Stable Supplies	518.07	939.44	975.82	1,000.00
Books and Periodicals	693.67	726.95	786.74	1,000.00
Commencement	342.38	1,394.31	1,458.29	1,000.00
Construction and Repairs	5,214.95	7,145.86	8,829.50	9,000.00
Dorm. and Farm Rentals	1,733.96	2 405.25	3,101.80	3,100.00
Entertainment	767.46	195.58	609.53	500.00
Feed	3,077.34	3,933.95	7,449.33	4,000.00
Fertilizer	568.01	62.58	934.35	600.00
Freight and Express	478.94	810.88	642.73	800.00
Fuel	10,844.20	12,147.78	25,195.14	20,000.00
Furniture and Fixtures	394.77	1,877.36	1,831.46	2,000.00
Gasoline and Oil	924.54	1,606.64	2,150.64	2,150.00
Janitors' Supplies	108.77	381.16	511.24	400.00
Labor	15,321.46	22,654.20	26,935.53	22,500.00
Laboratory Supplies	1,335.87	2,718.48	2,382.35	3,000.00
Live Stock	92.25	1,338.00	200.30	500.00
Postage, Printing, Sta.	2,910.92	2 198.40	3,695.56	3,500.00
Salaries	59,049.12	68,368.26	87,622.72	93,250.00
Seeds	284.28	342.64	730.95	500.00
Telephone and Telegraph	486.04	929.54	862.83	900.00
Tools and Machinery	297.65	989.65	1,069.31	1,000.00
Traveling	1 645.45	1,725.28	1,809.90	1,800.00
Electric Current		498.37	702.34	700.00
Refunds	167.95	886.81	389.20	400.00
Miscellaneous	3,031.29	3,277.22	2,684.97	3,000.00
Totals	\$112,717.64	\$142,419.44	\$187,365.14	\$181,500.00
			or 66.2%	
			increase over	
			Col. 1.	

TABLE II.

RECEIPTS.

	Average 1-15-17	1919	1920	Estimate, 1921
Morrill Fund, 1890, Balance on hand January 1	\$24,565.07	\$24,422.55	\$22,401.95	\$16,753.09
Morrill, 1890, received July 1, of which used	24,996.37	27,598.05	33,246.91	25,000.00
Morrill Fund, 1862	2,500.00	2,500.00	2,500.00	2,500.00
State Maintenance	40,000.00	45,000.00	75,000.00	40,000.00
Current Fund	20,656.21	33,461.98	38,922.22	37,500.00
Totals	\$112,717.65	\$132,982.58	\$172,071.08	\$121,753.09
Debit		9,436.86	15,294.06	60,000.00
Total	\$112,717.65	\$142,419.44	\$187,365.14	\$181,753.09

Compelling and accurate explanation of the increasing costs from year to year lies in the decreasing purchasing power of the dollar as shown in the following table based on Bradstreet's commodity index numbers for the corresponding years.

TABLE III.

YEAR	Amount received from both State and Nation	Purchasing value of One Dollar as compared with 1914	Purchasing value of amount in Column 2
1915.....	*\$97,500.00	.913	\$89,033.00
1916.....	**102,500.00	.761	78,002.50
1917.....	92,500.00	.5754	53,224.50
1918.....	92,500.00	.4809	44,493.25
1919.....	†116,936.86	.4821	56,375.26
1920.....	‡142,794.06	.4784	68,312.65
	\$644,730.92		\$389,441.16

* Includes \$5,000 for Improvements.

** Includes \$10,000 for Improvements.

† Includes deficit and \$10,000 for repairs.

‡ Includes deficit and \$35,000 special maintenance.

The items of the estimate for 1921, (see last column, Table I) have been very carefully considered as compared with those of the previous years and with due regard for the uncertainties of the immediate future. It does not seem probable that cost will be reduced so far as to lessen these estimates below the amount stated

Allowance, also should be made for the fact that during the lean years from 1915, repairs and replacements have been reduced to the least possible amounts; laboratories have run down in apparatus and supplies; furniture and equipment have deteriorated.

SALARIES.

It may be objected that the salary estimate is considerably beyond the same item in 1920, and that it is not necessary to increase salaries in 1921. In this connection three points should be considered; (1) that the salary increase agreed upon in 1920 did not go into effect until April of that year. Consequently the salary item for 1920 contains only three-fourths of the yearly increase agreed upon as a minimum concession. (2) that many of the professors and teachers resigned in September and in order to replace them with other acceptable persons, higher salaries had to be paid than were received by the previous incumbents. (3) that the salaries paid now (including the increase of 1920) at this college are not on the same scale as those paid by similar neighboring institutions in 1919-20 and are correspondingly less than the increased salaries paid now by these neighboring institutions. To make this point clear, the following table will be helpful.

TABLE IV.
AVERAGE SALARIES IN STATE-SUPPORTED INSTITUTIONS.

	1919 For all U. S. 80 Institutions	1919 For No. Atlantic States—10 Institutions	1920 For No. Atlantic States—10 Institutions	1920 For Rhode Island
President	\$6,647	\$7,075	\$8,331	*\$5,800
Deans	3,819	3,929	4,511	3,234
Professors	3,126	3,115	3,553	2,572
Asst. Professors . .	2,514	2,206	2,322	2,200
Instructors	1,552	1,465	1,732	1,760

* Plus house.

It will be seen that the salaries paid at Rhode Island are far from excessive. Indeed they do not equal those paid in Providence High Schools, where heads of departments receive \$2,800, and the second assistants \$2,500, as compared with \$2,572 as average for professors at the state college.

As to number of professors employed, the following:

The average state institution employs one instructor for every seven students. The enrollment at the state college is three hundred and fifty-six. This would give the college just fifty instructors. Actually, there are employed for these three hundred and fifty-six students, thirty-three instructors as follows: President, one; professors, fifteen full time and six on part time, accurately reckoned and paid for on the equivalent of a total of one full-time and one half-time; five assistant professors, and ten instructors, plus one on one-seventh time.

In addition, the pay-roll includes one registrar, one treasurer, one bursar, one college physician, five stenographers and clerks, one superintendent of buildings and one farm foreman.

Or the salary payroll may be classified as follows:

Agricultural department	\$13,600
Engineering department	14,000
Home Economics department	7,400
Science department	19,145
Mathematics department	4,600
Education department	1,500
Language (English and Modern)	8,600
Physical Training	5,000
Administration (including president)	12,781
Miscellaneous	3,802
Aid to experiment station salaries	1,475
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Total for year 1921, without increase in either rate or number prevailing September to December, 1920	\$91,903

In order to allow for future contingencies already apparent in present resignations among professors, the salary item in the estimate for 1921, (see Table I, last column) has been placed at \$93,250, an increase over 1920 of \$1347.

To cover the debit estimate (in Table II) of \$60,000, it would seem best to increase the statutory amount of \$40,000 yearly to \$75 000 yearly, and to provide by resolution for a special maintenance fund this year of \$25,000.

THE RETURN TO THE STATE FOR EXPENDITURES MADE.

All colleges are costly things. Especially costly are those pertaining to the improvement and development of agriculture and the mechanic arts. Nevertheless, after the revelations of the war especially, there can be few who do not realize that they are valuable far beyond their cost, and indeed essential to the existence and preservation of the social and economic order.

As a result of stimulation from the Morrill Acts of Congress, there has grown up a great chain of landgrant colleges in all the states of the Union, recognized as tremendously important and powerful in the life of the people. Can the State of Rhode Island afford not to develop its landgrant college and thereby deny to its youth the benefits which elsewhere are so zealously sought after?

The present attendance shows three hundred and fifty-six students, of whom three hundred and two are Rhode Island citizens. All the cities and twenty-four towns in the state are represented. One hundred and sixteen come from the city of Providence, nineteen from Newport, eight from Cranston, fourteen from Pawtucket, and twenty from Woonsocket. Three hundred of the citizens of the state are yearly seeking here the industrial and cultural training represented by the B. S. degree at Rhode Island. In addition, the state here has its part in agricultural research work; the farmers are kept in direct touch with the latest scientific methods and developments; boys and girls throughout the state are organized for productive work; and science is being brought to the aid of the home-keeper in her varied and difficult tasks.

TABLE V.

(Showing number pursuing each course at the State College)

Class	Home		Applied		Educ.	Total
	Econ.	Agriculture	Engineering	Science		
Senior	5	9	16	7	1	38
Junior	15	7	32	13	2	69
Sophomore	17	14	54	13		98
Freshmen	21	18	78	17		134
Special	3	8	2	4		17
Totals	61	56	182	54	3	356

The attendance on the agriculture course is sometimes criticised. Yet in proportion to rural population (15217) the State College has a larger number of agricultural students than any other college in the United States. In the same proportion

		Agricultural Students		Agricultural Students	Rural Population of State
University of Maine	should have	1,693	but has	216	468,445
Mass. Agric. College	" "	730	" "	505	202,108
Conn. Agric. College	" "	1,606	" "	331	444,292
Cornell University	" "	6,488	" "	2,112	1,794,985
Penn. State College	" "	11,220	" "	1,031	3,150,539

and so on through the whole list of states.

This college has the largest body of engineering students in the state and relatively to urban population has double as many engineering students as has Cornell University.

In home economics Rhode Island has sixty women students as compared with sixty-two in Maine and fifty-seven in Connecticut: relatively to state population it has double as many as has the University of Illinois, considerably more than has Purdue University and four times as many as has Pennsylvania State College.

COMPARATIVE STATISTICS.

To indicate the efforts and the sacrifices other states are making to give the advantages of the landgrant college to their youth the following figures are pertinent:

TABLE VI.

OUR NEIGHBORS.

COLLEGE MAINTENANCE

	Per. Cap. Wealth on Assessed or Realty Value	Population of State	Attendance at State College	State	Federal	Total from all Sources
R. I. State College, \$1,404		604,379	350	\$84,436	\$93,991	\$213,562
Conn. Agr. College, 1 061		1,380,385	345	127,500	99,961	367,460
Mass. Agr. College, 1,271		3,851,615	505	732,500	120,000	852,500
N. H. State Coll., 833		443,083	937	108,647	Figures not issued	
University of Maine, 752		767,996	1 432	170,000	.....	642,738
Univ. of Vermont, 525		352,421	1,290	Statistics not available		

TABLE VII.

Below is stated what has previously been provided for the colleges of the six New England states either by public funds or (in the case of Vermont) by private benevolence.

Institution	Property of In- stitution	Permanent Im- provements, 1920	Permanent Im- provements, 1921	Deficit in Main- tenance, 1920	Requests 1921-22	
					Maintenance.	Improvements.
R. I. State College.....	\$500,000	\$150,000	.....	\$15,294.06	\$100,000	\$32,024
Conn. Agr. College	1,060,881	240,449	\$335,000	123,000.00	*639,145	*1,063,900
Mass. Agr. College.....	3,747,564	.....	.....	.....	431,198	859,900
New. Hamp. Agr. College	647,000	28,000	.....	97,000.00	No figures available	
University of Maine.....	961,326	.....	.....	235,000.00	No figures available	
University of Vermont....	1,541,222	No figures available.		Endowment, \$1,000,000.		

*For two years.

TABLE VIII.

STATISTICS OF OTHER STATE COLLEGES REPORTING DEFICITS FOR 1920.

STATE	Per Cap. Wealth in Assessed Realty Value	State Population	College Attendance	College Maintenance			Deficit 1920	Funds for Permanent Improve- ments
				State	Federal	Total All Sources		
*Alabama	\$307	2,347,295	1,100	\$119,280	\$29,520	No data	\$70,000	.....
Arizona	2,566	333,273	1,015	412,506	103,151	\$805,415	50,000	\$206,900
Arkansas	219	1,750,995	924	242,500	36,363	507,367	65,000	.....
*Georgia	396	2,893,955	1,476	No data	.....	629,983	?.....	.....
*Kansas	1,573	1,764,185	3,228	691,300	79,000	1,686,924	70,000	100,000
Maryland	951	1,449,610	454	337,506	154,391	520,000	?.....	203,000
Minnesota	743	2,386,371	7,437	2,833,486	237,991	3,872,956	240,000	1,120,000
*Montana	2,307	547,593	680	120,000	50,000	516,850	90,000	140,000
Nebraska	278	1,295,502	4,450	1,870,030	220,115	2,446,710	?.....	527,580
New Jersey	868	3,155,374	891	200,000	98,000	No data	?.....	175,000
*New Mexico	1,047	360,247	336	108,335	125,000	342,143	?.....	12,500
*Oklahoma	710	2,027,564	1,400	350,000	750,000	699,000	400,000	135,000
North Carolina	194	2,556,486	950	150,000	41,000	919,002	35,000	300,000
*North Dakota	2,272	635,839	1,014	232,500	63,000	No data	76,600	?.....
Pennsylvania	No figures	8,720,159	2,806	790,344	470,852	No data	200,000	100,000
Tennessee	215	2,337,459	1,131	290,000	264,501	788,866	51,000	849,999
*Texas	442	4,661,027	.....	923,390	313,267	No data	?.....	288,500
*Virginia	357	2,306,361	755	173,595	65,343	981,782	10,000	144,580
*Washington	782	1,356,316	1,923	646,305	134,570	1,239,751	198,760	352,374

* Maintains a State University in addition.

? Deficit indicated by borrowing or by anticipating budgetary income.

FIRE AT HEAD-HOUSE OF GREENHOUSES.

On August 15 (Sunday) a fire destroyed the head-house of the greenhouses. The fire, as nearly as can be determined, was caused by some unknown person entering the building, attaching an electric iron, and leaving the iron attached on a table. The original cost of the building in 1907 was about \$6,000. Being state property it was not insured.

Something in the way of replacement had to be done at once to preserve the contents of the greenhouses. These greenhouses happily remained intact with the exception of some broken glass and some wooden walks over the conduit pipes. Accordingly, the Board after advising with officials and others, deemed it an emergency requiring prompt action, and authorized the reconstruction of the building over the original foundation. The bills contracted for this work are summarized as follows:

Labor already done.....	\$2,187 25
Lumber, sash and other material.....	2,495 32
Building paper, nails, etc.	250 18
Hardware	63 10
Glass for houses	92 60
Iron gratings for conduits	221 63
Electric wire and supplies	64 11
Repairs to one boiler	49 44
Outside painting	65 00
Radiators	60 00
Miscellaneous material	459 73
Plumbing contract (not finished)	285 00
Heating system (not finished)	350 00
Inside painting (not finished)	200 00
Estimated labor and material to finish	181 00
Total	<hr/> \$7,024 36

ADDITIONAL SUM FOR NEW BUILDING NEEDED.

While the work of constructing the new Agricultural and Administration Building has been carried forward as economically as possible the continually mounting cost of material during the year has made it impossible to complete the building within the amount fixed. The college is therefore compelled to ask for an additional appropri-

ation to finish the work. The account at present stands as follows:

A. Work performed and paid for:

Excavation	\$1,247 90
Water mains, etc.	1,049 92
Architect	7,020 21
Superintendent	3,048 50
Supplementary wages, quarry workers	3,065 00
Paid to date for labor and materials	52,194 63
Paid, contract for quarrying	40,478 00
Paid, contract for mason work	13,306 00
Miscellaneous	485 60
Balance on hand from appropriation	28 104 24
Total	<hr/> \$150,000 00

B. Work still to be performed:

Material	\$4,031 00
Labor	8,947 00
Wiring, electric	1,148 00
Lathing and plastering	5,000 00
Interior finishing	4,500 00
Painting	2,500 00
Work on heating system	2,600 00
Plumbing work	1,500 00
Stairways	3,000 00
Fire escapes	1,000 00
Electric fixtures	1,500 00
Miscellaneous	1,461 11
Total	<hr/> \$37,187 11

Amounts still due on contracts unfinished	<hr/> \$15,917 13
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Total to finish building	\$53,104 24
Deduct balance on hand as above	28,104 24
	<hr/>

Amount needed	\$25,000 00
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When the building is thus completed, the State will have here a handsome structure, 120 ft. by 54 ft., comparing very favorably with buildings recently constructed elsewhere costing from \$225,000 to \$250,000 and relieving conditions which four years ago the State planned to do away with.

In view of all the foregoing, your Board has had introduced into the general assembly measures containing the following:

REQUESTS OF RHODE ISLAND STATE COLLEGE FOR GRANTS OF FUNDS FROM
THE GENERAL ASSEMBLY, FOR THE YEAR 1921.

1. Payment of bills for 1920, remaining unpaid January 1, 1921..	\$15,294 06
2. Appropriation to defray the expenses of rebuilding the head- house of the greenhouses (destroyed by fire August 15, 1920)	7,024 00
3. Increase of maintenance fund, effective for 1921, by amending the amount carried in the statute from forty thousand dollars to	75,000 06
4. Special additional maintenance appropriation for the year 1921	25,000 00
5. Additional appropriation for the new agricultural and adminis- tration building	25,000 00
Total	\$147,318 06

FIRE RISKS.

By request of your Board, the What Cheer and Hope Mutual Fire Insurance Companies kindly caused, through Mr. Geo. F. Hiller, vice-president and engineer, a fire-prevention survey of the college buildings to be made. The report in full is appended.

As soon as the year's appropriations as requested are available, we should proceed at once to follow the suggestions made. The program laid out in the report is attainable, moderate, and effective. Fire risks are constantly on my own mind and have caused much uneasiness to members of your Board. The present risks are greater than we are warranted in taking.

In view of our isolated position much of the year and of the non-fire proof construction of our buildings, it would seem that the state should allow the college to carry at least a certain amount of insurance.

CHANGES IN FACULTY.

At the beginning of the college year in September, 1920, vacancies were created by the resignation of the following persons.

Miss Harriet L. Merrow, Professor of Botany.

Dr. P. B. Hadley, Professor of Bacteriology.

Miss Bessie E. Bemis, Professor of Home Economics.

Mr. Guy F. Wells, Professor of Education.

Mr. Frank J. Rimoldi, Asst. Prof. of Horticulture.

Mr. Fred J. Murray, Physical Director.

Mr. W. T. Spanton, Instructor in Teacher Training.

Mr. Frank Olson, Instructor in Mechanical Engineering.

Mr. Lester W. Lloyd, Specialist in Dairying.

Mr. W. M. Burgess, Instructor in Chemistry.

Later Professor R. L. Wales, Dean of the Engineering Department and Professor of Mechanical Engineering, asked for a leave of absence to accept certain work with the Bureau of Standards at Washington. It is hoped and expected that he will be back at his post the coming year.

Later, also, Mr. E. K. Thomas, who has for many years, conducted the Boys' and Girls' Club work and has made a very unusual record for success in it, resigned to accept a position with the Rhode Island Hospital Trust Company.

RETIREMENT OF MISS MERROW.

It is a matter of duty and pleasure to recognize thus formally the long and successful career of Professor Merrow, who after twenty-five years of fruitful service as Professor of Botany, retired from professional work on September first. Her many friends among both faculty and students (and all are her friends) greatly regretted her decision to withdraw from our community. No more faithful, conscientious and efficient professor ever served us. Resolutions of good will were adopted by both Board and faculty and the honorary degree of Master of Science was bestowed upon her at the Commencement exercises.

NEW APPOINTMENTS.

The following appointments were made to fill vacancies and to provide additional instructional help imperatively needed.

To be Professor of Botany, Harold W. Browning, Ph. D., University of Wisconsin.

To be Professor of Bacteriology and Chief of Division of Animal Breeding and Pathology, Henry G. May, Ph. D., University of Illinois.

To be Professor of Chemistry and Associate Chemist, Experiment Station, Paul S. Burgess, Ph. D., University of California.

To be Professor of Home Economics, Elizabeth D. Bache, M. A., Columbia University.

To be Physical Director and Coach, Frank W. Keaney, B. S., Bates College.

To be Instructor in Teacher Training in Agriculture, Leslie E. Abbott, B. S., Massachusetts Agricultural College.

To be State Leader in Boys' and Girls' Club Work, Lorenzo F. Kinney, B. S., 1914, R. I. S. C.

To be Instructor in English, Miss Elizabeth Hall, A. M., Columbia University.

To be Instructor in Botany, E. Avery Richmond, B. S., Dartmouth College.

To be Instructor in Agriculture, Leslie A. Keegan, B. S. 1919, R. I. S. C.

To be Instructor in Biology, Miss Gertrude Hughes, B. S., Cornell University.

To be Instructor in Horticulture, Mr. Herbert V. Marsh, B. S., Massachusetts Agricultural College.

To be Instructor in Shop Work, Mr. Frank F. Archibald, who comes to us with wide experience in shop-methods.

To be Instructor in Mechanical Engineering, Frank A. Burr, M. E., Brown University.

BOARDING RATES:

A year ago I mentioned in my report that the rate for board had been increased to \$5.50 per week. This was subsequently raised to \$6.00 and then to \$6.50. When some decrease in the price level of provisions came, the weekly rate was reduced to \$6.00 and there it is held at the present time. If further reduction can be made in the future it will be a source of congratulation to us all.

There has been some demand for a cafeteria plan of service, and we have made some investigations looking to the establishment of some such form of service, but no satisfactory readjustment of present conditions that would permit of a la carte service has yet been worked out.

NEW FRATERNITY HOUSE.

The completion of the new home of the local chapter of the Theta Chi Fraternity was duly celebrated by the Chapter, the community being invited to a house-warming on January 22, 1921.

They have a handsome and commodious house, located on a fine lot of their own in the village, and costing some \$24,000. The planning, financing, and construction of the house has been handled entirely by the young men of the Fraternity, and they deserve the highest praise for their enterprise and initiative. I felicitate them officially on their success. It marks another step in the life of the College community.

ATHLETICS.

The athletic interests of the college have been greatly forwarded by the appointment of Mr. Frank W. Keaney as physical director and coach. He has been with us long enough to demonstrate that he has the loyalty, industry, and ability to place our athletics and our physical training in general on a new plane of excellence. He has already won the hearty support of students and faculty in the working out of matured plans for progress in these very important phases of our college life.

CHANGES IN DAILY SCHEDULE.

In order to allow ample time in the day for physical training, for athletics and for the health development, the daily schedule has been so constructed as to confine practically all other class-work to the four hours in the morning, six days in the week, from eight to twelve, and the two hours in the afternoon, five days in the week, from 1:15 P. M. to 3:15 P. M. This plan has been on trial now for three-fourths of the year. While it causes some inconvenience, it has, I believe, met with general acceptance as bringing about necessary and desirable results. It has been of the very greatest service in establishing physical development as a recognized part of our curriculum and in increasing the efficiency of our athletic training.

THE NEW PRACTICE HOUSE.

Another new feature of our work for the year has been the establishment of a separate practice house for the women of the Home

Economics department. A convenient cottage in the village has been rented which the senior young women installed therein manage as a home, doing all the work in turn under the direction of the head of the department, who also resides there.

There has been no money available for properly furnishing this house. An appeal, therefore, was made to Alumni and friends of the college, and a gratifying response has provided some twelve hundred dollars wherewith to purchase furniture.

GIFTS TO THE COLLEGE.

In other ways there has been shown a vital interest in the welfare of our students.

The Federation of Women's Clubs, through its committee on Home Economics, has again awarded a scholarship of fifty dollars, this year to Miss Ruth Abbott of the Sophomore class. Likewise the Triangle Club of Kingston, has awarded its scholarship of fifty dollars to Miss Doris Kinne of the Junior class.

An appeal by the Athletic Association to Alumni and friends for funds with which to equip athletic teams is meeting with generous response.

Last, but not least, the students have by voluntary agreement doubled the amount of the blanket tax and this has been paid without exception by all.

BOARD OF VISITORS.

The Board of Visitors appointed for the year 1920-21 is as follows:

Mrs. Richard Jackson Barker, Tiverton.

Miss Caroline Hazard, Peace Dale.

Dr. Joseph B. Munroe, Warren.

Mr. Frank L. Pierce, chairman, Providence.

Mrs. Walter Rodman, Lafayette.

Mr. I. L. Sherman, Newport.

Mrs. David J. White, Davisville.

The Board has made two visits to the college. Its report when made will be subjoined to this.

EXPERIMENT STATION AND EXTENSION SERVICE.

The work of these two divisions of the college organization has gone steadily and successfully forward. For details you are referred to the reports of the two directors, which are herewith submitted.

WAR MEMORIAL.

Although this college, its faculty, its Alumni and former students, and its student body, played a conspicuously creditable and glorious part in the great war, yet no local memorial to our warriors dead and living has been created. Under the pressure of increasing embarrassment in its finances ever since the war ended, the college has found no funds of its own available; and no plan for raising funds for the purpose has met with general approval. It must surely be our first task in the immediate future to evolve some plan that may be acceptable to all for procuring funds to commemorate the deeds of our boys in the war and to perpetuate the memory of their heroism and devotion.

COMMENCEMENT.

The Commencement exercises were held as usual, June 13 and 14. The degree of Bachelor of Science was conferred on a class of 52; that of Master of Science on one candidate in course, and that of Civil Engineer on one candidate, likewise in course. The honorary degree of Master of Science was conferred on Miss H. L. Merrow, and that of LL. D., on Judge Frederick Rueckert, chairman of the State Board of Education.

Being myself incapacitated from making the usual baccalaureate address, Dr. Edward Holyoke of Providence, was invited to speak and gave a most impressive and acceptable address in my place.

The Commencement address was made by Dr. Maurice F. Egan, who spoke on "America and the Foreign Point of View." The address was one of the most scholarly and inspiring that have been given in many years.

Respectfully submitted,

HOWARD EDWARDS,

President.

March 19, 1921.

REPORT OF THE TREASURER

R. S. BURLINGAME, TREASURER, *in account with the different funds of RHODE ISLAND STATE COLLEGE, for the year ending December 31, 1920.*

MORRILL FUND of 1890 AND NELSON ACT OF 1907.

1920.

Jan.	1.	To Balance on hand.....	\$22,401 95	
July	1.	U. S. Warrant for year ending June 30, 1921....	50,000 00	
Dec.	31.	By Instruction	\$55,647 15	
		Laboratory Supplies	1 71	
		Balance on hand	16,753 09	
			\$72,401 95	\$72,401 95

MORRILL FUND OF 1862.

1920.

Jan.	1.	To cash from landscrip fund.....	\$2,500 00	
Dec.	31.	By Instruction	\$2,500 00	
			\$2,500 00	\$2,500 00

SMITH-LEVER FUND OF 1914.

1920.

Jan.	1.	To Balance on hand.....	\$6,265 33	
		U. S. Warrant for year ending June 30, 1921.....	11,673 75	
Dec.	31.	By Salaries	\$9,791 54	
		Traveling	1,918 43	
		Stationery and Printing	359 52	
		Postage, Telephone and Express	55 56	
		Seeds, Plants and Supplies	153 11	
		Furniture and Fixtures	66 14	
		Library	147 14	
		Publications	30 95	
		Scientific Apparatus	43 20	
		Labor	0 25	
		Tools and Machinery	8 47	
		Balance on hand	5,364 77	
			\$17,939 08	\$17,939 08

STATE—MAINTENANCE FUND.

1920.

Jan. 1.	To State Appropriation	\$40,000 00	
April 1.	Additional Appropriation	35,000 00	
Dec. 31.	By Traveling	\$796 37	
	Labor (janitor, farm, etc)	15,161 76	
	Postage, Stationery and Printing....	1,733 46	
	Salaries	23,723 15	
	Construction and repairs	7 008 62	
	Fuel	7,919 30	
	Stable and Auto Supplies	593 20	
	Seed	691 78	
	Rental of Land	620 00	
	Oil and Gasoline	1,764 85	
	Feed	6,784 12	
	Furniture	972 94	
	Tools and Machinery	374 77	
	Janitors' Supplies	328 15	
	Apparatus	2,555 30	
	Laboratory Supplies	1,674 99	
	Books	307 67	
	Live Stock	35 00	
	Chemicals	30 00	
	Commencement	904 18	
	Entertainment	22 32	
	Miscellaneous	998 07	
		<hr/>	
		\$75,000 00	\$75,000 00

STATE—BUILDING FUND.

1920.

Jan. 1.	To Balance on hand.....	\$101,862 78	
April 1.	Additional Appropriation	45,000 00	
Dec. 31.	By Architect	\$3,553 00	
	Superintendent	3,048 50	
	Traveling	16 19	
	Plans	100 00	
	Excavation	1,247 90	
	Construction	63 562 88	
	Quarry Work	45,097 33	
	Heating and Plumbing	1,082 82	
	Water	1,049 92	
	Balance on hand	28,104 24	
		<hr/>	
		\$146,862 78	\$146,862 78

CURRENT FUND.

1920.

Jan.	1.	To Appropriation to cover deficit in 1919.....	\$9,436 86
		Reserve Fund	2,000 00
		Department Service	4,852 65
		Department Sales	12,813 16
		Department Fees	3,696 93
		Laboratory Sales	2,189 87
		Dormitory Fees	8,241 81
		Tuition	2,408 28
		Interest	963 57
		Salaries	2,014 16
		Refunds	15 00
		Vocational Education	1,397 09
		Miscellaneous	749 49
		Amount overdrawn	21,504 08
Dec.	31.	By Balance overdrawn	\$9,436 86
		Freight and Express	642 73
		Traveling	1,015 77
		Rental of Dormitories	2,481 80
		Construction and Repairs	8,024 27
		Refunds	411 26
		Advertising in publications	130 75
		Postage and Stationery	1,945 72
		Feed	665 21
		Stable and Auto Supplies	382 62
		Commencement	554 11
		Student Labor	6,388 68
		Labor (janitor, farm, etc.)	5,385 09
		Electric Current Furnished	702 34
		Fertilizers	934 35
		Salaries	5,752 42
		Live Stock	165 30
		Telephone and Telegraph	852 83
		Tools and Machinery	694 54
		Apparatus	1,116 50
		Entertainment	587 21
		Books	479 07
		Seeds	39 17
		Laboratory Supplies	675 65
		Oil and Gasoline	385 79
		Janitor Supplies	183 09
		Fuel	17,722 44
		Furniture	864 72
		Fencing	267 60

Miscellaneous	1,395 06	
Reserve Fund	2,000 00	
	<hr/>	<hr/>
	\$72,282 95	\$72,282 95

TRUST FUND.

1920.

Jan. 1.	To	Balance on hand	\$292 15	
		Boarding Receipts	75,218 21	
		Store Receipts	10,086 06	
Dec. 31.	By	Boarding	\$68,474 53	
		Store	10,281 59	
		Balance on hand	6,840 30	
			<hr/>	<hr/>
			\$85,596 42	\$85,596 42

HATCH FUND—EXPERIMENT STATION.

1920.

Jan. 1.	To	Balance on hand	\$1,340 53	
		United States Check for Quarter	3,750 00	
April 1.		United States Check for Quarter	3,750 00	
July 1.		United States Check for Quarter	3,750 00	
Oct. 1.		United States Check for Quarter	3,750 00	
Dec. 31.	By	Salaries	\$6,840 34	
		Labor	4,051 63	
		Publications	1,472 51	
		Postage and Stationery	165 16	
		Freight and Express	165 45	
		Heat, Light, Power and Water	360 72	
		Chemical Supplies	117 20	
		Seeds and Plants	525 52	
		Fertilizers	318 25	
		Feeding Stuffs	875 74	
		Library	479 58	
		Tools and Implements	98 07	
		Scientific Apparatus	63 21	
		Furniture	2 10	
		Live Stock	17 85	
		Traveling Expenses	127 25	
		Contingent Expenses	1 40	
		Building and Land	284 16	
		Balance on hand	374 39	
			<hr/>	<hr/>
			\$16,340 53	\$16,340 53

ADAMS FUND—EXPERIMENT STATION.

1920.

Jan.	1.	To United States Check for Quarter	\$3,750 00	
April	1.	United States Check for Quarter	3,750 00	
July	1.	United States Check for Quarter	3,750 00	
Oct.	1.	United States Check for Quarter	3,750 00	
Dec.	31.	By Overdraft	155 60	
		Salaries	9 063 30	
		Labor	3,488 17	
		Postage and Stationery	31 20	
		Freight and Express	1 62	
		Heat, Light, Water and Power	382 16	
		Chemical Supplies	90 29	
		Seeds	54 68	
		Feeding Stuffs	1,084 80	
		Tools and Machinery	104 26	
		Scientific Apparatus	13 00	
		Live Stock	8 00	
		Contingent Expenses	3 15	
		Buildings and Land	121 48	
		Balance on hand	398 29	
			<hr/>	
			\$15,000 00	\$15,000 00

MISCELLANEOUS FUND—EXPERIMENT STATION.

1920.

Jan.	1.	To Balance on hand	\$957 05	
		Department Sales	8,020 74	
		Department Service	150 78	
		Interest	97 04	
Dec.	31.	By Salaries	\$736 22	
		Labor	2,127 26	
		Postage and Stationery	119 36	
		Freight and Express	716 18	
		Publications	271 50	
		Library	47 74	
		Tools and Machinery	679 34	
		Feeding Stuffs	694 42	
		Chemical Supplies	24 34	
		Fertilizers	2,285 75	
		Heat, Light, Water and Power	430 84	
		Live Stock	16 50	
		Traveling	150 82	
		Buildings and Land	130 31	
		Contingent Expenses	18 60	

Seeds, Plants and Supplies	199 31	
Furniture	2 50	
Balance on hand	574 62	
	<hr/>	<hr/>
	\$9,225 61	\$9 225 61

SUMMARY, EXCLUSIVE OF EXPERIMENT STATION.

Total income, including balances:

United States—1890	\$72,401 95	
United States—1862	2,500 00	
United States—1914	17,939 08	
	<hr/>	\$92,841 03

State:

Maintenance	\$75,000 00	\$75,000 00
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Institution:

Current	\$50,778 87	
Trust	85,596 42	
	<hr/>	\$136,375 29
		<hr/>
		\$304 216 32

Total Expenditures:

United States—1890	\$55,648 86	
United States—1860	2,500 00	
United States—1914	12,574 31	
	<hr/>	\$70,723 17

State:

Maintenance	\$75,000 00	\$75,000 00
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Institution:

Current	\$72,282 95	
Trust	78,756 12	
	<hr/>	\$151,039 07
		<hr/>
		\$296,762 24
		<hr/>
		\$7,454 08

Balance held as follows:

Morrill Fund—1890	\$16 753 09	
Smith-Lever Fund—1914	5,364 77	
Trust Fund	6 840 30	
Current Fund deficit	21,504 08	
	<hr/>	\$7,454 08

I hereby certify that the above is correct and true, and truly represents the details of expenditures for the period and by the institution named.

R. S. BURLINGAME,

Treasurer.

This is to certify that we, the undersigned, auditing committee of the Board of Managers of Rhode Island State College, have examined the accounts of R. S. Burlingame, treasurer of the said college, and find the same correct.

THOMAS W. MATTHEWSON,
ROWLAND HAZARD,

Auditors.

APPENDIX A.

Summaries Dealing with Certain Phases of Receipts and Expenditures for Year Ending June 30, 1920.

SUMMARY FOR YEAR.

Balance on hand July 1, 1919	\$103,963 49
Total income during year	363,590 47
Total	\$467,553 96
Total Expenditures During Year	316,946 34
Balance on hand July 1, 1920	\$150,607 62
INCOME.	
Income from Students:	
Tuition Fees	\$2,365 78
Matriculation and Incidental Fees	3,746 32
Chemicals and Laboratory Supplies	2,122 49
Dormitory Fees	8,914 31
Dining Hall	64,212 57
Store Sales	8,462 89
	\$89,824 36
Income from State and Nation:	
State—Maintenance Appropriation	\$75,000 00
State—Building, for two years	70,000 00
State—Maintenance Deficiency Appropriation.....	9,436 86
Federal—Morrill Act of 1890 and Nelson Act of 1907	50,000 00
Morrill Act of 1862.....	2,500 00
Hatch Act of 1887—Experiment Station	15,000 00
Adams Act of 1906—Experiment Station	15,000 00
Smith-Lever Act of 1914—Extension Service.....	11 491 87
	\$248,428 73
Income from other sources:	
Department Sales and Service	\$18,128 34
Interest	920 94
Experiment Station:	
Sales and Service	6 199 72
Interest	88 38
	\$6,288 10
	\$25,337 38
Total income	\$363,590 47

Receipts from tuition	\$2,365 78
Students taking course of one year or more....	343
Students paying tuition (non-resident in Rhode Island) at rate of \$50 per year	57

EXPENDITURES.

Expenditures, exclusive of Experiment Station and Extension
Service:

Advertising in publications	\$139 50
Apparatus	1,130 70
Boarding	66,586 41
Books and periodicals	724 56
Commencement	1,475 04
Construction and repairs	5,807 11
Construction and repairs, special	46,114 78
Dormitory and land rental	2,332 79
Electric current furnished from outside college	572 73
Entertainment	756 06
Feed	5,071 33
Fertilizer	917 60
Freight and express	731 26
Fuel	11,402 76
Furniture	1,419 42
Gasoline	2,010 76
Janitor supplies	362 80
Labor (engineers, poultrymen, farm, etc.)	16,553 39
Labor (undergraduate, exclusive of boarding depart- ment)	6,575 24
Laboratory supplies	1,881 64
Live stock	165 30
Postage, stationery and printing	2,167 28
Refund	683 56
Salaries	75,962 57
Seeds	693 59
Stable and auto supplies	738 75
Store	7,930 50
Telephone and telegraph	855 59
Tools and machinery	1 603 67
Traveling	1,763 29
Miscellaneous	2,208 44
	<hr/>
	\$267,338 42
Expenditures Experiment Station	37,519 73
Expenditures Extension Service	12,088 19
	<hr/>
Total Expenditures	\$316,946 34

SUMMARY OF BALANCES, JULY 1, 1919.

	1919.	1920.
Morrill Fund of 1862 .....	.....	.....
Morrill Fund of 1890 .....	.....	.....
Smith-Lever Fund Extension Service .....	.....	.....
Hatch Fund, Experiment Station .....	.....	.....
Adams Fund, Experiment Station .....	.....	.....
State—Maintenance	\$6,348 82	\$34,775 77
State—Repairs and Improvements	8 326 57	.....
State—Building	79,452 78	111,664 57
Current Fund	7,466 45	4,871 49
Trust Fund	(Dr.) 1,547 13	(Dr.) 3,388 58
Miscellaneous—Experiment Station	1,916 00	684 37
Reserve Fund	2,000 00	2,000 00
	<hr/>	<hr/>
	\$103,963 49	\$150,607 62

THIRTY-THIRD ANNUAL REPORT
OF THE
DIRECTOR OF THE AGRICULTURAL EXPERIMENT
STATION*

PRESIDENT HOWARD EDWARDS,
Rhode Island State College:

DEAR SIR:

I hereby submit in nontechnical language, concise statements of such experimental results obtained during 1920 as will indicate the nature of most of the more important lines of work.

In such a report of progress it should be understood clearly that present ideas regarding the results are liable to modification in the future as the researches are continued. Nevertheless, it seems desirable to transmit annually the impressions which are derived, even if some readers do attach too much importance to certain indications.

PUBLICATIONS.

The publications which have been issued in 1920 are as follows:

The reaction of the soil as influenced by the decomposition of green manures. In *Soil Science*, 1920, 9, 27-39.

Thirty-second annual report of the station. In *Bul. of Rhode Island State College*, XV, 4, 69-85.

Studies on the inheritance of egg-weight. I. Normal distribution of egg-weight. *Bul.* 181, January, 1920, 64 pp.

Fertilizer versus manure for continuous vegetable growing. *Bul.* 182, May, 1920, 11 pp.

The effect of dicalcium silicate on an acid soil. In *Soil Science*, 1920, 10, 57-60.

Analyses of commercial feeds. Annual feed circular, May, 1920, 11 pp.

Field experiments which included the soy bean. *Bul.* 183, June, 1920, 15 pp.

* Contribution No. 277 of the station.

Trichomonas and blackhead in turkeys. In American Naturalist, 1920, 54, 176-181.

Analyses of commercial fertilizers. Annual fertilizer circular. October, 1920, 11 pp.

WEATHER.

Detailed weather records may be found in the Climatological Data, New England Section, of the U. S. Department of Agriculture Weather Bureau. The mean temperature of the growing season in Rhode Island was below normal till August, being 2.7° and 2.1° below normal in May and June. October, as in 1919, broke the Kingston record of over thirty years for warmth in that month. The last spring frost on Kingston Hill was on May 5, a drop to 32° . This temperature was not reached again until October 30.

The rainfall of the state was above normal till July, namely $+1.35$ in. for April, $+0.69$ for May, $+3.65$ in. for June. At Kingston the total rainfall for June, 7.42 in., broke the record here for that month; 3.80 in. fell within 24 hours on June 5. There was only a trace of precipitation from October 2 to 27, the dry period of the year. The rainfall was so abundant during the active growing season that the irrigation system was not used on the vegetables.

ORGANIC MATTER FOR THE SOIL.

Of the four winter legumes which were sown on July 28, 1919, in sweet corn, the winter vetch, mammoth clover and alfalfa were practically all killed during the following severe winter. Although the sweet clover was badly heaved, it was alive in the spring and had made a good growth on most of the plat when plowed under before planting kidney beans early in June. The red variety germinated better, matured earlier, and yielded 15 per cent. more beans than the white variety.

Where corn is grown continually and a rye cover crop is always plowed in, 44 bushels of corn were produced. Where legumes instead of rye have always been used as a cover crop, 51 bushels were produced although there was only a third as much nitrogen used in the fertilizer. With no cover crop, but with conditions otherwise the same as on the rye section, the yield was 37 bushels. Twenty pounds of nitrogen per acre are now applied annually to the legume

section and 60 pounds to the other sections to ascertain whether the extra value of the legume cover crop is equivalent to 40 pounds of nitrogen annually.

In the cold wet spring of 1920, stable manure was at an unusual disadvantage in the market garden experiments. Except in the case of early lettuce, the yields with the 32 tons of manure alone were no greater than from the rather low-yielding peat plats, which receive fertilizer, and organic matter in peat equal to that in 16 tons of manure.

In the greenhouse, normal results have not been obtained with peat. The best combination of sand, peat, lime and fertilizer chemicals produced only about half as valuable a crop of lettuce as that obtained with manure compost, and the comparison in case of the following crop of cucumbers was not much more favorable. The proportion of peat has now been reduced to about a fourth instead of a half as formerly.

Even the late celery which usually has been the most responsive to the residue of the spring application of manure was no larger with the manure alone in 1920, the fifth year, than with the green manures and fertilizer. When a high nitrogen fertilizer is used in both cases, the indications are that 16 tons of manure will prove as useful as 32 tons in a three-year rotation of (1) beets-cauliflower; (2) spinach-carrots; (3) eggplant.

Green manure crops planted broadcast after the middle of July to find out which will subsequently produce the largest amount of oven-dry material above ground have yielded the following as an average of two years:

	Dry matter per acre. Tons.
Pearl millet	2.34
Japanese millet	2.32
Sudan grass	1.75
Barley	1.72
Buckwheat	1.58
Corn	1.56
Sunflower	1.45
Kale	1.35
Cowpea	1.29

EFFICIENCY OF FERTILIZERS AND OTHER MANURES.

The water-insoluble nitrogen in the fertilizers sold in the state was as usual especially tested for quality both in the laboratory and by growing plants. There is still some nitrogenous material of poor quality which is not confined to an excess above the guaranty.

Nitrate of soda continues to be superior to sulfate of ammonia and cyanamid when furnishing nitrogen at the rate of 25 pounds per acre as top-dressing for grass, even when wood ashes is used as the source of potassium in an attempt to avoid acid-soil conditions.

Where 80 pounds of nitrogen per acre were supplied, and an attempt made to create a uniform condition of soil neutrality, nitrate of soda and sulfate of ammonia each produced about equal crops of tobacco, buckwheat, parsnips, peppers and sugar beets. Because about four times as much spinach was produced in 1919 with nitrate of soda as with sulfate of ammonia, another 1000 pounds of calcium oxid per acre were added in ground limestone to the sulfate of ammonia plat, following which only about a fifth more spinach was produced with the nitrate than with the sulfate. This makes 2500 pounds of calcium oxid more per acre, which in the last six years have been added to the sulfate of ammonia plat than to the limed nitrate of soda plat. For 21 years previously the two plats had been limed alike. The use of sulfate of ammonia for crops sensitive to acid soil conditions is liable to be disappointing unless very careful attention is given to the lime requirement of the crop.

Corn, which was the crop on the phosphate experiment, made a chlorotic and abnormal growth where ground limestone has been added rather abundantly in recent years with the view of neutralizing the soil. Only with Thomas slag phosphate, which contains much iron, and with a large amount of acid phosphate, which would perhaps aid in the assimilation of iron, were the ill effects of the lime, in possibly interfering with iron assimilation, counteracted. Healthy growth was obtained with all the carriers of phosphorus on those plats which have received very little lime. The experiment furnished a striking demonstration of the deleterious effect of liming beyond the needs of a crop.

Mixed clover and grass, which was seeded in the silage corn in 1919, yielded in 1920 about 3.25 tons of hay, as was the case three

years previously in the same rotation. Again there was scarcely any difference whether four cords of cow manure with planer shavings for bedding or an equivalent amount with straw bedding was used as a top-dressing. In 1920 the grass responded somewhat to the addition of acid phosphate with the manure. The crop was only a third of a ton lighter where no manure was used but where the four cords were replaced by about the following fertilizer ingredients.

	Pounds per acre.
Nitrate of soda	130
Acid phosphate	240
Wood ashes	1085
Salt	300

In the next year of this three-year rotation, oats and peas are followed by rutabagas. The latter crop is the one which has responded most markedly to the addition of the acid phosphate.

Irish Cobbler potatoes were grown in an experiment designed to show the effect of the different elements in the ordinary potash salts, the basal fertilizer having been composed of sources of nitrogen and phosphorus not containing the elements in any of the potash salts; that is, no chlorin, sulfur, sodium, magnesium nor potassium. Where the potassium had been omitted entirely for 10 years, only small potatoes, 56 bushels, were obtained, whereas with a liberal amount of sulfate of potash 271 bushels were produced.

Where early cabbage, tomatoes, and lettuce are grown, the 32 tons of stable manure alone did not compare as favorably as in preceding years with half the manure and three-fourths ton of 4-10-2 fertilizer. Cabbages again responded to more nitrogen than in the above analysis, and lettuce to more of all three ingredients. Neither in 1919 nor 1920 was there an increase in the yield of these early tomatoes which had ripened by August 23, due to additional fertilizer elements, although the tomatoes which were green then were increased. For the second crops of this rotation, namely beets, spinach and celery, respectively, about half a ton of 5-8-7 fertilizer was added to supplement the spring application used with 16 tons of manure. The growth of each crop was greater with the half manure and fertilizer than where there was only the spring application of 32 tons of manure alone. The largest yields were where an extra

amount of either nitrogen or phosphorus was added. There the late crops were a half larger on the average than where they had only the 32-ton spring application of manure.

PLANT DIFFERENCES AND NEEDS.

Yellow-colored soy beans, sufficiently early to mature their seed, were compared to determine their merits primarily for silage purposes. From very small areas, the undried plants yielded at the following rate in tons per acre on September 14: Haberlandt, 9.3; Mongol, 7.2; Swan, 6.4; Hollybrook, 6.3; Amherst, 4.8; Austin, 3.9; The Haberlandt seemed a little less mature than the others. In Bulletin 183, which is on soy beans, it is stated that the Haberlandt and Swan varieties are among the promising ones for silage purposes. It is hoped that they and others will be tried separately and some of the seed saved for a subsequent year. An insufficient proportion of bean vines is obtained when planted in the drill with silage corn. An equal area of the two silage crops planted separately may be used for a mixed silage which may materially reduce the purchase of protein concentrates. Soy beans maintain their popularity in part because their lime requirements are moderate, and they are able to secure for themselves much of their nutriment.

Leaming silage corn was not climbed well by New Era cowpea, Wilson soy beans, Marrowfat garden peas, or spring vetch, when these were planted in the drills with it. The Velvet bean and Horticultural pole bean, however, did climb the corn satisfactorily to a height of 6 to 7 feet; the growth of the former was light, comprising less than a tenth of the total green weight; whereas, the latter formed beans and comprised a fourth of the total weight of 21 tons.

Southport red globe onions yielded more than Danver's yellow globe in 1919, and than Southport yellow globe in 1920.

On June 19, Bloomsdale spinach was developing seed stalks when Giant Thick-leaf was at its best, and Long Standing not so far advanced. The last mentioned yielded the most.

The Green Mountain potato, which was the chief variety grown on the rotations yielded a total of 323 bushels. The following varieties compared favorably with this, namely: Kasoag Russet, Rural New Yorker No. 2, Sir Walter Raleigh, Cuban Multiplier, and Olds' Scotch Rural. The American Giant yielded a hundred bushels more

but this was exceptional. Yields from 255 to 299 bushels were obtained from Burbank, Rural Russet, Carman and Dooley's. Netted Gem yielded only 148 bushels.

Nineteen crosses of potatoes supplied by the U. S. Department of Agriculture were grown with the same fertilizer as the above varieties although the land had been in alfalfa recently. On the basis of about 100-foot rows, one cross yielded 628 bushels, four others over 500, eleven between 400 and 500, and only three less than 400. The Green Mountain planted for comparison yielded 356 bushels.

Where grass and rye are seeded in the fall after potatoes and the clover sown early the following spring with no nitrogen, and with 20 and 30 pounds per acre in nitrate of soda, the respective yields of rowen, 1.25, 1.01 and .79 tons in 1920; and similarly 1.14, .90 and .66 in 1915, show how much better clover is able to maintain itself without applied nitrogen than are rye and grass, which crowd clover out when they are well supplied with this element.

On the second-year grass of the seven-year rotation, which received per acre 100 pounds each of phosphoric oxid and potassium oxid in acid phosphate and muriate of potash, the yield was 5.12 tons of hay. Where only half of these ingredients were added individually, the yields dropped to 4.65 and 4.15 tons respectively. In all cases 55 pounds of nitrogen in nitrate of soda were used. In 1906 and 1913 the hay was also lighter where the smaller amounts of phosphorus and potassium were applied. On the other rotations, fertilizer chemicals equivalent to a half ton of 5-8-5 fertilizer were applied to the second year grass. In those rotations which never receive any manure, 12 cwt. of 5-8-5 fertilizer is used for corn, yield 72 bushels in 1920; and 16 cwt. of 5-8-5 fertilizer for the following potatoes, yield 315 bushels in 1920.

Named in the order of their slowness in maturing when all were planted May 11, rye, wheat, barley, oats, buckwheat, and millet were grown in a soil test. With the exception of buckwheat which was more nearly able to supply itself with phosphorus than with nitrogen and potassium, from plats not receiving these individual elements in the fertilizer, all of the other crops suffered a greater deficiency of phosphorus than of nitrogen or potassium: they were able to obtain six-tenths or more of their needs of the latter two elements, but

only from a quarter to a half of their phosphorus needs. The earlier crops suffered more than the later ones from the deficiency of phosphorus and less from the deficiency of potassium. A similar experiment is being carried on in pots with rye, oats, buckwheat and millet.

In the greenhouse, two or three plantings of radish and spinach are followed by tomatoes in sand with different amounts of plant food added, to ascertain the needs of the crops. The first picking of ripe tomatoes was made on July 9. During the remainder of that month the yields were about the same with the sand and best combination of fertilizer chemicals as with manure compost, but not enough nitrogen was supplied in the chemicals to produce so large a total crop as with the compost.

EFFECT OF CROPS ON EACH OTHER.

When onions were planted on an acid soil in 1910, following various crops, the yields were very differently affected by those crops. Since that time lime and ashes have been added to the soil for the purpose of neutralizing at least the greater part of the acidity. Mangels, which like onions are sensitive to acid-soil conditions, were the single crop that was planted in 1920 after the various crops which had preceded it for two years. As was the case with onions, the poorest yield was where mangels had preceded, namely, 22.8 tons per acre. A contiguous plat which had previously been in rutabagas for two years yielded 39.8 tons. The yields following fourteen other crops were about the same as this. Except when following mangels, the liming had practically obliterated any effect which the preceding crops would probably have exerted if the soil had been sufficiently acid.

On another field where the soil has been left acid, sugar beets and spinach grew better following a single year's previous growth of tobacco and parsnips than after sugar beets, spinach, peppers and buckwheat. The areas involved were so small, however, that only indications were afforded.

Late cabbages following four different first crops grown in the same season under like conditions have given the following yields as a three-years' average:

	Late cabbage heads. Tons per acre.
Planted after spinach	10.33
Planted after potatoes	9.47
Planted after beets	8.91
Planted after peas	7.43

In the lime-requirement experiment, the good growth of set-out tobacco plants on the acid plats indicated again that tobacco may be placed with buckwheat in the low lime-requirement class. (1) It seems doubtful judging from the results of the past two years, if cotton belongs to that class. Although parsnips were considerably benefited by lime and may therefore continue in the most needy class (3) with beets and spinach, they were not so sensitive as the latter crops to acid-soil conditions. Pepper plants were not sensitive enough to be placed in class 3.

CHANGING SOUR SOILS.

Where the soil had been practically neutralized by the last application in 1916 of high-magnesium limestone, high-calcium limestone, or the burned and hydrated products produced from them, forty per cent more hay was obtained on August 3 from a mixed seeding in the spring of 1920 than from the plat which had never been limed; but it was somewhat surprising to find that on October 4 the alsike and red clover aftermath from the unlimed plat, 0.8 ton per acre, was as much as from the limed area. As in 1919 with potatoes, there was no positive difference in the total yield of hay, depending upon the kind of lime. In calculating the calcium oxid equivalent of magnesian limes, the experiment seems to justify increasing the per cent of magnesium oxid a third before adding it to the per cent of calcium oxid.

Largely by the continued use of sulfate of ammonia, instead of nitrate of soda, in the annual top-dressing for lawn grasses, soil acidity has been maintained to such an extent that weeds are entirely eliminated, although the lawns are fifteen years old.

Three thousand pounds of calcium oxid per acre in hydrated lime were applied each spring of three successive years with the object of preventing clubroot of late cabbage grown each year following

different spring crops. In the third year the clubroot was very plentiful where lime was not added, but there was none where the above-mentioned lime was applied. In the fourth year, 1920, because the heavy liming had depressed the growth of the first crops, only 500 pounds of calcium oxid in limestone were added. For the first time there was then some clubroot even on the limed area; there were no good heads on the unlimed section, but 8.1 tons per acre on the limed area.

PLANT PROPAGATION.

Irish Cobbler seed potatoes which were obtained from Maine in 1914, '15, '16, '17, and grown at the Rhode Island station each year since then in comparison with new northern-grown seed tubers, had shown practically no deterioration until this year when they averaged 206 bushels in comparison with a yield of 361 bushels from "seed" grown farther north. Although marked deterioration has been rare with this early variety, late varieties of the Green Mountain group have usually shown similar deterioration in spite of tuber-unit selection. Green Mountain seed tubers grown in 1919 with fertilizer differing only in two amounts of nitrogen, of phosphorus or of potassium, yielded in 1920 from 18 to 27 per cent less if grown in 1919 with the larger than with the smaller applications of these successive fertilizer elements.

Where two eyes on a small piece of Green Mountain potatoes were planted in comparison with two similar eyes on the remainder of the potato, all other eyes having been dug out, the influence of the larger piece was to increase the number of stems which emerged from the compound eyes. This was in effect equivalent to a thicker planting, which in the well-fertilized soil led to an increase in total yield from 293 bushels from the small pieces to 380 bushels from the large ones. Where the extra stems were removed from the large pieces so that there were no more than on the small pieces, there was practically no difference in the yield. This indicates that with the same number of stems, or in other words the same amount of vines, the yield is not influenced by the size of the seed piece.

The field demonstration suggested by the U. S. Department of Agriculture was repeated to test the principle that maturity and production of grain are governed by the age from beginning of germina-

tion. Although lack of help prevented early planting, all the fertilizer was applied May 10 and about a month's difference in age attained by planting some corn kernels on May 11 and others on June 7. A silage corn variety, No. 182, weighed a fifth more if planted early, and nearly twice the weight of ears were produced when it was harvested on September 30 than if planted late. Data on the other varieties, which were cut early in October, although the late-planted corn was immature, and husked a month later, were as follows:

	Yield of ears per acre.		Wt. of 100 selected
	Hard.	Soft.	ears.
	Bu.	Bu.	Lbs.
R. I. white cap corn, planted early.....	53	3	38
R. I. white cap corn, planted late	38	9	36
No. 193, a yellow flint planted early.....	45	13	47
No. 193, a yellow flint, planted late.....	33	18	41
Silver King corn, planted early	46	9	47
Silver King corn, planted late	36	12	42

The greater maturity of the earlier planted corn is a matter of importance from the standpoint of germination.

INHERITANCE STUDIES WITH POULTRY AND RABBITS.

The study of the inheritance of egg-weight has been to some extent interrupted through the fact that the eggs have hatched very poorly. This was especially true in the last year. Whether this lack of hatchability is due to the extreme sizes of eggs used, to the conditions of the incubators and incubator room, or to inherited tendencies in the selected strains has not been determined. The fact that egg-weight is definitely inherited has been established. According to the laws of this inheritance it should be possible to maintain a flock of hens laying eggs of fairly uniform size by hatching chicks only from eggs of the desired size, especially if those eggs are taken from hens which uniformly lay eggs of approximately that size. The work on the inheritance of egg-weight is being continued to ascertain the modes of inheritance.

Further studies on the relation between the increase in the weight of eggs during the period of high production to the laying qualities of the hen seem to show that at present no fixed law can be laid

down. In a flock of White Plymouth Rocks, it seemed possible to select the best producers by selecting those hens whose increase in egg-weight, during the period of high production, was greatest. In other flocks, however, this does not always seem to hold true.

The study of the inheritance of body weight in the cross between Cornish and Hamburg strains has also progressed very slowly because only a small number of chicks has been obtained.

In the selection for larger colored areas in English rabbits, it has been impossible to get further results in the last few years for the simple reason that only enough offspring could be obtained to keep the stock going.

IMMUNITY AND INFECTION.

In the study of the behavior of bacteria of the paracolon type, the results so far indicate that a large number of different strains may be distinguished.

Respectfully submitted,

BURT L. HARTWELL,
Director.

Kingston, R. I.

REPORT OF EXTENSION SERVICE FOR YEAR 1920

PRESIDENT HOWARD EDWARDS,

Rhode Island State College:

DEAR SIR:

I beg to submit herewith the annual report for the eighteenth year of the Rhode Island State College Extension Service.

During the past year there has been no material change in the four main lines of work which include Administration, County Agent Work, Home Demonstration Work and Boys' and Girls' Club Work. We have unfortunately been compelled, on account of the withdrawal of federal funds and the increase in expenses of all kinds, to discontinue our last project dealing with specialized extension teaching; namely, Project VII which provided for the employment and work of a state dairy specialist.

As a matter of information it may be interesting to note the results of increased costs to the Extension Service. In 1914 with the original \$10,000 we were able to outline six projects, the four main projects mentioned above and a specialist project in agronomy and one in poultry husbandry. We also had at that time a full-time State Leader in County Agent Work so that Project II received the same amount of attention that Projects III and IV now receive. In 1916 the position of State Leader of County Agent Work was discontinued and the duties of that office were added to those of the Director. During the war Project VI was partially discontinued and the work was taken up as club work in poultry husbandry under Project IV and supported entirely by federal funds. At about the same time also the agronomy work was placed entirely on federal funds. With the close of the war the emergency funds from the federal Department of Agriculture were withdrawn and both agronomy and poultry husbandry had to be dropped. We still hoped to continue the dairy

husbandry because it was paid for out of funds which the Department of Agriculture had allotted to it before war was declared. The policy of retrenchment, however, deprived the Department of funds for extension work in animal industry and our final specialist project as already noted had to be given up.

It will perhaps be well in passing to state briefly our conclusions from our experience with the work of specialists. These coincide entirely with accounts which we are now getting from other states. Extension workers who can specialize in limited fields and who may therefore hope to achieve some degree of efficiency both in subject matter and practice within their fields are more and more regarded as a very important part of the extension system. It is the experience in every state that the county agent will not achieve the best success in his principal duties if he tries to function as a specialist in one or more lines. If he tries to cover the entire field and function as both organizer and specialist he will fall far short of winning the full confidence of the farmers. If, on the other hand, he can be assisted in his endeavor to carry on his work as an agent and organizer by men who know their work well in a specialized field an effective system of extension teaching can be built up. This means that if the extension specialist is to fulfill his function he must be a real specialist who knows his work thoroughly. Unless well trained men can be secured for specialists' positions, it is better not to have them for poorly trained men simply emphasize the same disparity which is experienced when the county agent endeavors to pose as a specialist.

CHANGES IN PERSONNEL.

Mr. Lester W. Lloyd, Dairy Specialist, employed in co-operation with the United States Department of Agriculture and the State Board of Agriculture, resigned August 15 to take up farming, and his project as already stated was discontinued. Miss Ruth D. Peterson, who was engaged January 26, 1920 as chief stenographer to take the place of Miss Vroom, was offered a position in Providence which gave her an opportunity to live at home and she resigned April 24, 1920. She was succeeded by Miss A. Inez McMeehan, a graduate of Brown University and of the Katharine Gibbs Secretarial School, who began work April 26. Miss Grace F. Read resigned June 29,

1920, and her place was filled by the appointment of Miss Ruth A. Gildea who took up her work on August 23. Miss Margaret A. Wilcox resigned in December, her resignation to take effect at the end of the year. Her place will be filled by Miss Anna L. Clark who will take up work on January 7, 1921. Mr. E. K. Thomas who has been connected with the department in charge of boys' and girls' club work since 1908 and who was a part time employee for a year previous to that also resigned in December, and his resignation is to take effect January 15, 1921. His place is to be taken by Mr. Lorenzo F. Kinney, Jr., a native of Kingston and a graduate of Rhode Island State College. Mr. Kinney has also completed work for a master's degree at the University of Wisconsin and has done some summer school work at Harvard University. Mr. Kinney will take up his duties on January 17, 1921. Among the co-operative employees, Mr. Sumner D. Hollis, county agent in Newport County, resigned August 31, and his place was taken by Mr. James Edward Knott, Jr., a graduate of the Roxbury Latin School and of Rhode Island State College. Mr. Knott served in the aviation branch during the war and was instructor part of the time and part of the time survey officer in charge of auditing and investigation of property losses. Mr. Knott took up his duties on October 13. Mr. Frederick G. Comins, county agent for Southern Rhode Island, resigned October 1, and although nearly forty possible candidates have been canvassed since that time none of them has seemed to measure up to the requirements for this bureau. Miss Ruth G. Murray, home demonstration agent in Newport County, resigned December 24, and at the end of the year no one had been found to take her place.

OFFICE ORGANIZATION.

The many changes in the office force and the delay in some cases in securing new workers have thrown additional work on those remaining so that we have not been able to make as much progress as we had hoped in the plan outlined last year. It is expected, however, that with a stabilization in employment which should come with a return to normal conditions we may be able to carry our plans to a fair degree of completion during the present year. Progress has been made on an office manual which will serve as a guide for our workers and particularly for new appointees when changes have to

be made. The office records have been systematically arranged so that it should be possible at any time to look up any records of past work which we may have on hand. Miss McMeehan has been given additional duties and is in full charge of the office and of the stenographers when staff members are absent in the field.

NEW EQUIPMENT.

We were able this year to replace an old 5x7 camera which was purchased second-hand and has done duty in the department for about 17 or 18 years, with an up-to-date Premo outfit of the same size and with an anastigmatic lens. In the furniture line a much needed table has been added, also a steel file and an umbrella stand. We have purchased a Graphoscope Portmanteau which will be used by the college extension workers and also by the farm bureau employees in presenting suitable moving pictures to audiences interested in agriculture and home economics.

CONFERENCES.

Weekly conferences of the extension staff have been held so far as possible throughout the year. It is the general plan for the staff workers to be in the office every Monday morning for these conferences or for any other office work unless some very important appointment in the field calls them away. The conferences have been very helpful in co-ordinating the three lines of work and will be even more helpful in the future when the club work becomes a part of the general activities which we are conducting through the farm bureaus. A plan for quarterly conferences of all extension workers was also inaugurated, the first three of which were to be held with the Providence County, Newport County and Southern Rhode Island farm bureaus in turn, and the fourth to be held at the college in connection with the annual conference. This program was carried out the past year with the exception of the meeting with Southern Rhode Island which had to be omitted on account of the pressure of work with the fairs and the resignation of the county agent. At our first conference held in Providence County, the program consisted of a general discussion of the methods of developing our farm bureau work. The Newport County meeting was devoted especially to office records. Mr. Hollis of Newport County had instituted a very effective system

and his description of this together with a further explanation of the plan by Mr. Wilson of the States Relations Service and the general discussion brought the matter very definitely before all the farm bureau workers. As a result in part of this meeting Southern Rhode Island has voted to install a similar system in its office, and the fact is realized by all the bureaus that a definite system of permanent records of work accomplished is of the utmost importance. An informal conference between the representatives of the college and the farm bureaus was held in March. At this meeting special emphasis was placed on better organization of the farm bureau activities and we feel that as a result there will be greater uniformity in the holding of executive committee meetings and also in requiring reports from the co-operative employees. In view of the fact that a State Federation of Farm Bureaus is in the process of formation, it is expected that in the future the federation conferences will take the place of these informal meetings.

CAMPAIGNS, SHORT COURSES AND LOCAL ORGANIZATION WORK.

The State Leader of Home Demonstration Agents in co-operation with the home demonstration agents, the county agents and the manager of the New England Milk Producers' Association and others made a vigorous effort to carry on a milk campaign throughout the state and would have succeeded had not one of the big milk dealers in the state refused to join. It is expected that this plan will be taken up again another year. The work of organizing cow testing associations was continued and one was completed in the Southern Rhode Island district so as to begin work last March. Another has been developed during the summer and fall in Providence County and is about to take up work. Membership campaigns were planned for all three bureaus to take place in January and February. Newport County carried out its campaign in January and succeeded in completing it with a fairly good increase in its membership. The other two bureaus expected to take up the work in February, but the unusual snow storms and severe weather conditions completely upset the plans. A series of five extension schools were planned for Newport County, but only two of them had been held when the storm period came on and made it impossible to complete the work.

PUBLICATIONS.

The Farm Bureau News has continued throughout the year and has made excellent progress. It is representing more and more the work of the farm bureaus. Farm bureau members are sending in material and the paper is fulfilling more and more the functions of a farm bureau paper. Thirty-two pages more were printed during the year than during last year and the advertising was placed on a more definite basis. Ration sheets for dairy cow and poultry feeding prepared by Professor Ladd and Mr. Brett respectively were sent out with each issue. The finances of the paper were also more satisfactory than during the previous year. A new bulletin or circular entitled "Balancing a Dairy Ration" by Mr. Lloyd was published. Two "Extension Bulletins," one "Poultry Foods and Feeding" by Mr. D. J. Lambert and the other "Potato Growing in Rhode Island" by Mr. S. C. Damon, have been revised and reprinted in editions of 3,000 copies each. Two numbers of the Extension Review were also published. One of them discussed the present status of extension work and was distributed at the county fairs as well as by mail. One hundred extra copies of the annual report were printed for distribution in exchange for similar reports of the different states and for sending to the libraries of the state.

EDUCATIONAL EXHIBITS.

Exhibits were staged in Hazard Hall at the Washington County Fair, at the Newport County Fair, at the Providence County Fair at North Scituate, at the Pawtuxet Valley Fair at Fiskeville and at the Ashaway Grange Fair. An exhibit was also made in November at the Combined Show of the State Poultry Association, Horticultural Society, Fruit Growers' Association, Market Gardeners Association and Corn Growers' Association. This show drew a record breaking attendance which was estimated at nearly 70,000 during the four days and was instrumental, no doubt, in bringing various exhibits to the attention of a great many people in the city of Providence who had not previously been reached by any of the agricultural fairs or exhibits.

FINANCES OF 1920-1921.

Since the funds of the extension service are almost entirely of federal origin, it seems best to report on the basis of the federal fiscal year which ends June 30, 1920. The financial report rendered to the federal Department of Agriculture in accordance with the provisions of the Smith-Lever act is summarized as follows:

Regular funds of the college:

Federal Smith-Lever funds	\$11,491 87
State Smith-Lever funds	1,491 87
Supplementary college funds	235 18

There were also allotted to Rhode Island from regular appropriations of the United States Department of Agriculture for the above named period and paid out in salaries to co-operative employees the following amounts:

For county agent work	\$3,300 00
For home demonstration work	2,700 00
For club work ,	1,500 00
Other Federal Funds Available for the State.	

In addition to the above the following amounts set aside by the States Relations Service of the U. S. Department of Agriculture have been available for the use of the state, but owing to the fact that we have not the state funds with which to meet the co-operative requirements we have not been able to draw them.

For home economics work	\$600 00
For club work	1,800 00
For farm management work.....	1,500 00

We have also had an offer from the States Relations Service to contribute \$1,500 per year towards the employment of an assistant leader in club work to take charge of the work with girls and while there has been no definite proposition made we have reason to believe that we could secure a similar amount for a specialist in clothing work to assist the home demonstrator, if the state could furnish the necessary additional funds for salary and expenses.

ACKNOWLEDGMENTS.

The Extension Service is called upon to record an unusual number of resignations this year, and among them is that of Mr. E. K. Thomas who was employed as part time instructor in school garden-

ing during the summer of 1907, and from 1908 to the present date as a full time employee in charge of boys' and girls' work, first as instructor of Junior extension, and since 1914, as State Leader of Boys' and Girls' Club Work. During this period of nearly fourteen years, Mr. Thomas has rendered persistent, untiring and effective service and has been able to bring his work to the attention of a large number of people in the state. We feel that he has laid a foundation in this line of work which will be very helpful in developing a better attitude toward, and a greater interest in, agriculture and home economics in the future among Rhode Island people.

Credit is due Mr. L. W. Lloyd who functioned as state dairyman until the work had to be abandoned on August 15. He rendered sincere and faithful service and was able in co-operation with the county agents to carry out several lines of work which are and will be very helpful to the dairymen of the state.

Mr. Sumner D. Hollis who resigned as county agent of Newport County, September 1, made an enviable record. Like nearly all the agents who have been employed in Rhode Island, he had no previous experience, but he quickly grasped his duties and in the estimation of those who knew his work at the time of his resignation he had brought it to a high standard of efficiency.

To Mrs. Ida S. Harrington, State Leader of Home Demonstration Agents, credit is due for the completion of a very efficient year of service. In spite of the difficulties incident to the introduction into Rhode Island of any new venture, especially if it touches in any way long established methods and customs, she has been able to bring the home demonstration work of the extension service to the favorable attention of a great many people. The Director gratefully acknowledges also Mrs. Harrington's helpful co-operation in the co-ordination of the various lines of extension work and the establishment of a more genuine spirit of team work both at the college and in the farm bureaus.

It is a further pleasure to state that there is among all the employees of the department whether in the field or at the college a spirit of loyalty to the college and its co-operators and a manifest desire to render faithful and efficient service. There is a growing appreciation of the fact that this attitude is fundamental to the successful development of our work.

Finally the Director acknowledges with pleasure the continued support of the President and other authorities of the college, the kindly interest and frequent assistance of the resident faculty, the co-operative spirit of the farm bureau officials and members, and the timely help constantly rendered from the States Relations Service and other bureaus of the United States Department of Agriculture.

PLANS AND RECOMMENDATIONS FOR THE FUTURE.

As most of our work must be done through the farm bureaus, it is very essential to maintain, first of all, a definite understanding as to co-operation with these organizations. As was stated in last year's report, our co-operative relationships are developing satisfactorily, and on this basis we are building a better co-ordination of effort and a better understanding as to the methods of conducting farm bureau work. It is the purpose of this office to assist the farm bureau officials in every way during the coming year, both in the general organization of county agent, home demonstration agent and club work and also in the working out of details for the different lines. It should be stated in this connection that our present organization, while it provides for full time leadership in the development of home demonstration work and club work, allots only one-third of a worker's time to the county agent work which is of necessity fundamental in the development of farm bureau activities. The States Relations Service has made definite proposals to remove this disparity and it is to be hoped that some way may be found to accept this proposal, and to provide additional help to the county agent work.

Some progress has been made toward a better co-ordination of work in the field through a better understanding and closer contact between the subject matter departments of the college and the field workers. In other states this contact is made by specialists attached to the subject matter departments, but under our circumstances it must be accomplished by a more direct contact between the resident teachers and extension workers. There is need of further work in the future which shall bring about closer relationships along this line.

As has been stated under "Finances" there is a considerable sum of money appropriated by Congress to the Department of Agricul-

ture to be used in co-operation with the various states in certain lines of work. This in a way is intended to offset the disparity in the allotment to many states of Smith-Lever funds due to the somewhat inequitable method of distribution which is based on the proportion of each state's so-called rural population to the total rural population of the entire country. Like the supplementary Smith-Lever funds, the availability of this money from the Department of Agriculture is dependent on a state appropriation sufficient to enable the college to supply the additional funds needed to carry on the work to which the funds from the States Relations Service are allotted. I would respectfully suggest therefore that as soon as the matter can be taken up, there should be an effort made to secure the necessary state funds so that we can make use of these federal funds.

WORK WITH PROJECTS.

Project 1. This embraces the supervision of the different projects, expenditure of funds, auditing of bills, and other administrative matters as well as a good deal of miscellaneous work. Records of the work done so far as records are kept under this project, are very largely embodied under the statements already made, and no further additions need be made here.

Project II. County Agent Work—A. E. Stene in charge.

The work of county agents is dependent to a great extent on the progress of the farm bureaus, and it seems desirable, therefore, to report briefly on the development of the bureaus for the present year. Several improvements have been made in the business methods of the bureaus, and among these, two are of special importance. One is the holding of regular monthly meetings of the executive committee to which are generally also invited members of the board of directors. The other is the requirement that the farm bureau agents shall render reports of their work and activities at these meetings. Another indication of progress is the growing interest in a state federation of the farm bureaus and affiliation with the American Farm Bureau Federation. Membership campaigns were planned by all three bureaus, but only one managed to carry out the plans before the storms of February and March came on. The other two bureaus have just about maintained their last year's stand-

ing as to number of members. The membership fees in all three bureaus have been raised to \$5.00. Practically no additions have been made to the public funds appropriated for farm bureau work, but the organization of cow testing associations as a part of farm bureau work, and the employment of cow testers as members of the farm bureau staff of employees, has enabled the bureaus to draw their full share of state funds. Only one city, Newport, is contributing to farm bureau support.

Two of the farm bureau districts have again lost their agents. In Newport County, Sumner D. Hollis resigned to take a position as farm manager on September 1. Mr. James E. Knott, Jr., a graduate of Rhode Island State College, was appointed to take his place and began work on October 13. Mr. Frederick G. Comins of Southern Rhode Island, resigned October 1, and so far, no successor with satisfactory qualifications has been found.

In Southern Rhode Island the chief attention of the agent has been given to the introduction of pure bred, or high grade dairy cattle, and the establishment of cow testing associations. Demonstrations in poultry culling and bridge grafting have also been held. In this district there is a notable example of an awakening to the importance of community committees.

In Providence County the agent has also stressed improved methods of dairying throughout his district, and among his achievements are the organization of one cow testing association and two breeders' associations, representing the Holstein and the Ayrshire breeders respectively. These associations have adopted an aggressive program, and it is expected that they will help materially in placing pure bred live stock in the dairy herds of the state, and especially in putting good cows in place of the culls found by the cow testers. With the co-operation of the Providence County Farmers' Exchange, a considerable number of farmers have been induced to use lime, others to select their fertilizers with more care and both groups to buy co-operatively through the exchange. Some work has been done in demonstrating bridge grafting and poultry culling. Another important piece of work carried out by Mr. Hawes is the bringing together in the farm bureau office of several agricultural associations for the purpose of organizing a combined agricultural show. As a result of this, the state poultry association,

corn growers, market gardeners, fruit growers and horticultural society joined forces and secured the use of the Providence Armory for holding the show. This show had free admission, and during the four days, it is estimated that approximately 70,000 people visited the Armory.

Work in Newport County was outlined at the beginning of the season under the following heads: organization in which the principal work was to conduct a membership campaign; establishment of a system of office records; poultry culling and caponizing; dairy improvement with work on bull associations and cow testing associations; co-operative buying and the re-establishment of a farmers' exchange; alfalfa, silo and potato demonstrations. As a result of the organization work, the membership was raised from 218 to 315. An excellent system of office records has been installed. Poultry culling demonstrations and a bridge grafting demonstration were held and during the summer there was a tractor demonstration which attracted a goodly attendance and considerable interest.

The time of the State Leader has been divided as in past years, to give about one-third of his time to county work. He has attended nearly all the executive committee and directors' meetings of the farm bureaus, also the meetings to organize a State Federation of Farm Bureaus. In furthering the work of forming a State Federation, he was instrumental in calling the preliminary meetings, securing well-informed, efficient speakers, and in bringing to the bureaus information which they would need in determining whether they should affiliate with the American Farm Bureau Federation. Several conferences of county agents have been held at the college, and a plan has been developing for holding quarterly conferences of all extension workers, one in each of the farm bureaus, and one at the college. In the conferences with the agents the careful planning of written projects and office organization has been stressed. Many conferences have also been held with agents individually and collectively, in connection with farm bureau organization, exhibits, development of projects, Farm Bureau News, etc. It has been necessary to spend a good deal of time in looking up candidates for county agent positions and in conferences with farm bureau officials on appointments.

A joint field day with the State Grange, with a tractor demonstra-

tion and a speaker for the farm bureau side was arranged for from this office. Assistance has been given in arranging exhibits at the fairs, and the exhibit for the Combined Agricultural Show in Providence was largely prepared by this office and the Newport County Bureau.

Project III. Home Demonstration Work—Mrs. Ida S. Harrington in charge.

The goal set for the year's work was to achieve a full-time worker for either Southern Rhode Island or Providence County, to help Miss Browne develop the work to the point where the need of another worker would be recognized, to rouse the women of Providence to their need of a city worker, and to secure the necessary support for a state-wide clothing specialist. This goal has not been reached, but enough progress has been made to give stimulus to further effort.

Most communities in this state are over-organized, and it has seemed wise, therefore, to work through existing organizations, and to gradually make the home demonstration worker the leading spirit in co-operative effort. In the communities that are not only without organization but without aspirations, we try to win our way through individual contacts. In Newport County the demonstration agent has been able to do this partly through working with the public health nurse.

One of the important things accomplished in the way of organization has been the formation of the "Co-operative Nutrition Bureau of Rhode Island," representing the Department of Health, Anti-Tuberculosis League, Education Department, School Hygiene Committee, Society for Organizing Charity, Congress of Mothers, Housewives' League, and Extension Department of the R. I. State College. The Anti-Tuberculosis League has pledged \$2,500 for a nutrition specialist and expenses for a year, and the Providence Housewives' League pays a second worker. It was voted that the Home Demonstration Leader be "always ex-officio a member of this committee," and that she be authorized to select the two trained workers. Contributory to the work of the committee are two nutrition groups, one of teachers and one of mothers who are being given work in nutrition which they in turn are to give to groups of teachers and mothers. The work with this group is statewide in scope.

Local leaders have worked efficiently not only in the dress form and millinery projects, but in attendance at the fairs, where they gave excellent service, and incidentally increased their own knowledge.

Considerable work has been accomplished in the preservation of food especially in the Providence and Southern Rhode Island districts, where through the personal solicitation by the home demonstration agent, unusually good records were kept. The foreign women are eager to learn American canning. It is hard to estimate the amount of teaching that has been given since so much of it has been "curb-stone advice" or part of a general discussion on home demonstration topics.

Clothing work has been successfully carried on, one of the most noteworthy achievements being that of the Graniteville Mothers' Club where the mothers were taught how to teach their children in school. Each week two mothers acted as volunteer teachers. This has led to the engaging of a regular sewing teacher in the schools. Similar work was done in one of the towns in Newport County, but the result was not quite so satisfactory since lack of funds has as yet prevented the hiring of a sewing teacher.

The millinery work was begun after the demonstration agents had had a special course under Mrs. Peppard at the State College. Out of seven groups that have taken up the project in Newport County and seven in Providence and Southern Rhode Island, seven local leaders have been secured who can teach under supervision.

One hundred and four dress forms have been made since the project started. The value of this project lies in the fact that it is an entering wedge for health work, that it represents a dollars and cents saving, and that it is a good means of training local leaders. At one place in Providence County, which needs organization as strongly as it lacks it, two "Betty" meetings have led up to a community meeting.

Four groups have taken up household management; Kingston, Peace Dale, Westerly, and Pawtucket. In each case the work has included motion study, equipment, budgets, and an exhibit of good and bad utensils contributed by the group. Household budget work has also been done in Newport. At the combined show held by the Rhode Island League of Agricultural Associations in the State

Armory, the home economics exhibit consisted of four rooms, 24 by 12 inches each which were equipped, "to scale" to show the contrast between a good and bad living room, and a good and bad kitchen.

The fairs are in need of much improvement. Premium lists must be revised, standards of exhibits raised and educational features be increased if the fairs are to serve their purpose.

Miss Frysinger and Miss Van Hoesen of Washington, have visited us during the year, and we have been able to secure as speakers, Miss M. E. Sprague from Connecticut, Miss Daisy Williamson from New Hampshire, Miss Mildred Thomas from Worcester County, Massachusetts, and Miss Deming from Connecticut. In return, Mrs. Harrington has spoken in Connecticut and several times in New Hampshire and Massachusetts, and has been re-elected vice-president of the New England Home Economics Association. All this helps make the Rhode Island work better known and knits it up more closely with that of the other states.

Project IV. Boys' and Girls' Club Work—E. K. Thomas in charge.

December, 1920, marks the thirteenth year of Boys' and Girls' Extension Work carried on in Rhode Island in co-operation with numerous organizations and individuals mentioned in this report.

Superintendents, principals and teachers in Rhode Island have always recognized the educational value of boys' and girls' club work, and they should be given full credit for the splendid work which they have encouraged in practically every community in the state. The school has been used as a medium of approach to the boys and girls in their homes. Educators in Rhode Island have been quick to recognize that the club work furnished a constructive and profitable program of work for young people during the hours when they are not in school. Club work has also brought the school and the home, parents and teachers closer together, and done much to develop a better community spirit.

Several club members were ready to take the agricultural courses under the Smith-Hughes work when they were established in Bristol and South Kingstown. Several former club members are attending R. I. State College today.

Club work is endorsed by many organizations and individuals making their contributions to the work as follows: State Board of Education endorses and encourages club work among superintendents and teachers: superintendents, principals and teachers act as club leaders and encourage the work in the community through their schools; State College and Experiment Station provide reliable information on all phases of agriculture and home economics, assist in training judging teams, etc.; State Board of Agriculture provides funds for prizes, achievement badges, bulletins and fertilizers; State Normal School furnishes halls, laboratories, and equipment for leaders' training courses and conferences; State League of Improvement Societies encourages club work and offers prizes and banners for successful work; Granges endorse the club work, and offer prizes for the best achievements; towns and cities provide funds for local leadership in co-operation with the State College and the U. S. Department of Agriculture; chambers of commerce endorse the club work, and offer prizes for achievement; boards of recreation conduct gardening and canning campaigns in which boys and girls take prominent part; mill owners provide opportunities for gardening in mill villages, and encourage the young people to take part; Boy Scouts engage in club work activities; girls' clubs engage in canning and sewing activities; women's clubs endorse club work, provide leadership and financial aid; Governor's Prize Garden Committee offers prizes for best gardens and encourages boys and girls to take part; agricultural and horticultural associations provide departments for boys' and girls' exhibits and offer prizes; farm bureaus and agents endorse club work and agents assist in training judging teams.

The most successful years for club work in Rhode Island were the two years, 1917 and 1918, and the good work done in these two years was kept up for the first half of the year 1919. As no provision was made by the federal Department of Agriculture or the State to provide funds to carry on this work after the war emergency funds were exhausted, much work has had to be left undone since July 1, 1919. The four state-wide workers could not be kept, nor could the twenty-six part-time workers be paid when the emergency funds gave out. As a consequence Rhode Island has had in

1920, one state-wide worker, fourteen part-time workers and the volunteers have dropped to one hundred.

The following club projects have been conducted during the year: corn, potato, garden, canning, poultry, pig, baking and cooking, sewing, handicraft, rabbit. A few boys have been interested in activities such as keeping bees, goats and guinea pigs.

All of the clubs organized since 1916 have been "Standard Clubs." The charters are not being used, however, because it was found impossible with the lack of leadership to train each club in judging and demonstration work so that it could apply for the achievement scale at the end of the year.

In giving the enrollment for 1920 as 4670 it should be remembered that practically no new work has been undertaken. As much work as possible has been done through clubs already organized.

The lack of leadership to take care of work organized shows up in the number of final reports received each year. This year the reports were very slow in coming in.

Numerous fairs are held each year in Rhode Island, and practically all organizations have been induced to encourage boys' and girls' departments. The educational value of these institutions from the standpoint of extension work is seldom fully appreciated.

To carry on the work as it should be done, Rhode Island needs one State Club Leader, one Woman Assistant State Leader, to supervise the girls' programs of work and three county leaders.

Project VII.—Dairy Extension—L. W. Lloyd in charge.

The work of the dairy specialist for this year has been carried on under the following headings: 1, herd improvement; 2, dairy cattle feeding; 3, dairy building, sanitation, and disease suppression; 4, farmers' organizations; 5, publicity work. Of these five main divisions, more work has been done under 1 and 2 than any of the others.

Under the first heading comes the formation of four cow testing associations. This has been accomplished by persistent and constant education in regard to the value of records for the economical management of cattle, and with particular reference to the figures from other associations in regard to the value of good over poor cows. While no systematic campaign has been carried on during

the past year a considerable number of purebred bulls have been brought into the state, or purebred bulls from farms in the state have replaced scrubs. In practically all cases where better stock has been introduced the farmer has been advised by the county agent or the agent in dairying. Seventy-five head of purebred cattle of all four breeds, Holstein, Ayrshire, Guernsey and Jersey, have been brought in by the county agents and the dairy specialist. All four cow testing associations, two in Washington and Kent Counties, and one in Newport and one in Providence County, have been started since the first of November, 1919. With the exception of one in Newport County they all have more than 23 days' work each month. Between 1,500 and 2,000 cows are being tested. The associations are now beginning to prove their worth. Two cow clubs have been formed, one with three members, and the other with two. The boys have been helped to select good grade or purebred cows and have, under the advice of the agent in dairying, been advised in regard to feeding and care of the animals.

A great deal of work has been done in feeding, some fairly well organized, but a large part of it miscellaneous. Each month a ration sheet has been sent to all farm bureau members of the state, (and to others on request). This sheet has met with a good deal of favor. During the winter the following problems were submitted to the county agents. Where no definite results are at hand the problems were tried out and some good must have resulted from them: 1. The feeding of a home mixed milk substitute to calves made up of equal parts, red-dog flour, oil meal, hominy and blood meal. 2. The feeding of silage in a herd where there was no silo. 3. The feeding of grain according to the milk flow. 4. The feeding of a home mixed ration versus ready-mixed commercial ration. A silo campaign was conducted during the summer of 1919. A considerable number of circular letters dealing with seasonable feeding problems were sent out.

With dairy building, sanitation and disease suppression only a small amount of work has been done, and this has been of a miscellaneous character. Now and then advice has been given in regard to building, and to ventilation and lighting of stables. Sanitation has been confined mostly to the advice for cleaning up after tuberculosis and contagious abortion.

Farmers' organizations have been helped to some extent. A farmers' co-operative buying association has been formed in Newport County and has bought considerable grain co-operatively. Such associations throughout the state have saved the farmers a great deal of money.

Publicity work has been carried on in no organized way, but such agencies as the fairs of the state, the Farm Bureau News, all papers in the state and circular letters have been used.

The work done with hogs, sheep and horses has not been very great because of the limited call for it, and the short time which could be spared from the more important dairy work. Very few calls have come to the office for help with sheep, but several circular letters have been sent to all sheep raisers in the state. The response has not been marked although some interest was shown by further inquiries. Extension work in connection with horses is practically at a standstill, and very few horses are being bred in the state.

A four page circular on "Balancing the Dairy Ration" has been prepared, and 3,000 copies have been printed.

Respectfully submitted,

A. E. STENE,

Director.

November 1, 1920.

To the Corporation of Rhode Island State College,
Kingston, Rhode Island.

Gentlemen:

At the request of several members of your Board of Managers, an examination of the buildings and property of the State College has been made from the standpoint of fire protection.

This report is respectfully submitted covering the present conditions, with recommendations for such improvements and additions as may be needed to properly safeguard the property against loss by fire.

A summary is presented on the following page with an abstract of the recommendations for convenient reference.

SUMMARY.

The Agricultural Building and Science Hall have been designed and built with due regard to modern fire prevention practice. The earlier buildings have features which are hazardous not only to the safety of the property, but also to that of the occupants.

The water supply, while being reasonably satisfactory in amount for domestic and general purposes, is unable to furnish a suitable quantity for fire protection by any means at present available.

This property being owned by the State of Rhode Island is not insured and the cost of replacement is probably in the vicinity of \$1,000,000.

Ample and effective protection against loss by fire is, therefore, urgently necessary.

RECOMMENDATIONS.

1. Improve present water supply by reducing leakage and providing for assistance from the Wakefield automobile fire engine.
2. Install 750 gallon Underwriter steam fire pump.
3. Extend yard piping to provide additional hydrant protection.

4. Install 50,000 gallon gravity tank on 100' tower and use present standpipe for fire pump suction supply.
5. Install automatic sprinklers in Girls' Dormitories and other important places.
6. Provide adequate supply of fire hose, small hose and chemical extinguishers.
7. Improve fire cut offs in several buildings and provide fire doors where needed. Provide additional exits at Lippitt Hall.
8. Organize fire brigade.

CONSTRUCTION.

The following comments cover in detail the general features of each building with reference to their fire hazard.

Agricultural Building. A modern non-combustible type building of excellent design with stairs and elevators enclosed in substantial brick walls with all openings protected by standard fire doors. Future buildings should be designed along similar lines to insure a permanent and practical result.

Science Hall. A non-combustible building with class rooms, lecture halls and laboratories. The stairway is non-combustible, but is open at each floor. A gasoline machine is located in one of the rooms in the basement.

Lippitt Hall. This building has joisted floors and wooden roof supported on wooden trusses. The two lower stories are used for class rooms, library and engineering laboratories. The upper high story is a large assembly hall with raised platform at one end and a balcony along one side.

There is one stairway at about the center of the building partly enclosed by wood partitions and provided with wooden doors. It is immediately evident that the exit facilities for the auditorium are inadequate.

Adjoining this building is a brick Boiler House with light joisted roof supported on steel beams. The Power House and Pump Room have brick walls with light joist roof and plastered ceilings. A fire in either of these buildings would interrupt both heat or light service to most of the property.

A moving picture booth has been erected in the balcony but no provision has been made for proper ventilation and the construction is much inferior to best practice.

East Hall. This dormitory for men has two stairways near either end of the building, and although permitting quick spread of fire from floor to floor would allow reasonably good exit facilities for occupants. The stairway and elevator from basement bakery to kitchen are now open with no provision for fire cut-offs.

Davis Hall. It is understood that on the completion of the Agricultural Building the General Offices will be removed to new quar-

ters and Davis Hall will be used entirely by women students as a dormitory. The present construction with balconies around an interior well does not permit of any adequate floor cut-off feature. The stairway is open and not well arranged for either safety or convenience. There are some fire escapes provided of doubtful usefulness which probably need careful examination and repair. No simple means are available for making this building safe, but careful study by a competent architect should develop much needed improvements which might well be included in any changes to be made after the removal of the offices.

South Hall. The construction here is the least satisfactory of any of the more important buildings. For dormitory purposes it is unsafe, as the open stairways and difficult access to fire escapes make probable serious loss of life among the thirty or more girls who use this building. A fire which once gained headway would undoubtedly wreck the building, as it would be practically impossible to prevent the immediate spread of the flame throughout the whole interior.

This building and Davis Hall present the two worst conditions to be found on the property, and unfortunately there appears to be no remedy short of extensive reconstruction. The possible danger to the life of the students, however, should prompt immediate and vigorous study of a most serious condition followed by improvements carried out in a thorough manner under the direction of a competent architect.

Machine Shop. This building contains a large value in machine tools and various supplies and should be protected against the possible large property loss by a more adequate means than that afforded by the few sprinklers now in place.

The Forge Shop, a one-story building of light inferior construction, is a considerable exposure to the Machine Shop.

Farm Buildings. The dairy and chicken buildings are of the usual type of light wooden construction and their safety from loss by fire depends entirely on hydrant protection and a high standard of order and neatness maintained at all times.

PROTECTION.

The first consideration is adequate water supply. The present equipment consists of a 70' standpipe, 15' in diameter, having a capacity of 80,000 gallons, with its top only a few feet above the roofs of the important buildings. It is supplied by a pump taking suction from three wells having a total capacity of about 48 gallons per minute. The pump can deliver twice as much as the wells supply. There is also a 100-gallon pump about one-half mile distant in the meadows taking suction from a well that delivers about 60 gallons per minute. From this pump, water is forced through what

is stated to be a six-inch cast iron pipe to the standpipe. This pipe was laid about 25 years ago and it is said that eight years ago it was estimated to leak about 15,000 gallons per day.

The domestic service also is taken from the standpipe system and the consumption is estimated at 35,000 gallons per day. This, with the leakage, makes a total of 50,000 gallons per 24 hours which may be assumed as the total daily demand. The capacity of the four wells is estimated at 155,000 gallons per 24 hours and that of the pumps about twice that amount. A pipe said to be 6-inch extends to three hydrants on the campus and a three-inch line runs to the Ladd Laboratory or shop.

During a recent fire which destroyed part of the greenhouse and its boiler plant, the system failed to supply sufficient water to be of service even in this low building.

The pump at the Power House can deliver directly to the pipe line and hydrants by closing a valve at the standpipe and opening one in a cross connection, but as its capacity is only about 100 gallons per minute and it would have to supply leakage of 10 to 15 gallons per minute, there is little water left for fighting fire when it is realized that at least 250 gallons per minute are required for one good fire stream.

There is a pumping engine at Wakefield which can be called into service by telephone, but there is no water available for suction supply except what may be in the standpipes and accessible through hydrants.

It is suggested that a program based on the following recommendations be adopted to be carried out in five years, and that appropriations of \$6,000 per year for five years be made to cover the expense.

The following Recommendations are presented in the order of greatest importance, the object being to develop as early as possible some effective protection against fire and to build this up to an adequate system within a few years with provision for future growth.

RECOMMENDATIONS.

1. *Improvement of present supply.*

- (a) The wells and pumps apparently maintain a supply of water sufficient for daily use. The condition of the underground piping is such that it probably will not stand any considerable increase of pressure. The long run of 6" pipe to the meadow may be responsible for much of the leakage that is indicated. A check valve should be placed just below the branch to the hydrant near the stable to prevent the loss of water from the standpipe. This check valve will permit additional pressure to be applied on the

hydrants and will prevent any loss of water by the possible breakage of the long run of old pipe to the meadows.

(b) Provide for assistance from the Wakefield Pumper by installing a check valve and 2½" by-pass on the discharge line from the standpipe with proper equipment for temporary suction and discharge connections. Provision should be made for future connections to fire pump as described under recommendation No. 2.

(c) Make tests to determine amount of leakage before and after installation of check valve under item (a).

2. *Fire pump.*

Install a 750 gallon Underwriter Steam Fire Pump in the Power House. Make connection back of the check valve at the standpipe for suction supply through 8" discharge line to 6" yard pipe at favorable place. Provide gate and check valve as usual at the pump and make required steam connections to boilers.

3. *Extension of yard piping.*

(a) Provide hydrant at southeast corner of campus near Agricultural Building and complete loop of 6-inch pipe around the south and east sides.

(b) Replace present 3-inch line to Machine Shop with 6-inch cast iron pipe, connect to hydrant and provide for supply to sprinklers in shop.

(c) Extend 6-inch pipe to a new hydrant to be located southwest of Davis Hall and provide connections for sprinklers in Davis Hall and the Girls' Dormitory or South Hall.

(d) Extend 6-inch pipe and locate hydrant on College Road for the protection of the several fraternity houses.

(e) Extend 6-inch pipe and install hydrant for protection of "Chickenville" and the additional protection of the farm buildings.

4. *Water tank.*

The present standpipe supplies the domestic demand and probably is seldom full during the day. Although its total capacity is over 80,000 gallons, it is likely that an average of 50,000 gallons is about all that can be expected. The available pressure is also reduced from a maximum of say 45 pounds at the center of the campus to 25 to 30 pounds. Neither the quantity of water nor its pressure is at present adequate for fire protection, and it is only barely satisfactory for domestic service.

Erect a 50,000 gallon tank on a 100' tower on as high ground as possible near the present standpipe. Provide an 8-inch discharge line with check valve and by-pass, gate valves and heating equipment. Connect to yard main at convenient point and keep tank full by pumping through the by-pass.

Keep standpipe full at all times as a reserve supply for emergency or fire purposes.

5. *Automatic sprinklers.*

(a) The construction of Davis Hall and South Hall is such that a complete equipment of sprinklers throughout each building is necessary not only to protect against loss by fire, but even more important, to insure the safety of the lives of occupants.

(b) Install sprinklers in the basement of East Hall and in the kitchens on the first floor.

(c) Install sprinklers in the basement of Lippitt Hall and in the Boiler and Engineering Rooms.

(d) Install sprinklers throughout the Ladd Laboratory or shop building, including the studio on the upper floor.

(e) Install sprinklers on dry pipe system in the forge building if it is to remain in its present location.

6. *Fire hose, etc.*

(a) Keep in good order at least 1,000' of cotton, rubber lined fire hose of some brand approved by insurance companies. This should be distributed about the property in 150' lengths in suitable, fully equipped hose houses near the hydrants. The hose now on the reel should be examined and any doubtful sections removed. The threads of all hydrants, hose couplings and nozzles should fit the hose in Kingston and Wakefield, or fittings provided so connections can be made.

(b) An Underwriter nozzle with 1 $\frac{1}{8}$ " tip should be provided at each hose house and the nozzles at present in service should be replaced if found defective.

(c) The small hose equipment at standpipes in each building should be carefully examined, made complete and any defective sections replaced with approved linen hose with $\frac{3}{8}$ " nozzles. Hose racks should be provided where now lacking.

(d) Chemical extinguishers should be provided throughout all buildings wherever now lacking, one on each floor of all buildings and two on each floor of the larger ones, and all should be re-charged annually with record kept on attached tag.

7. *Construction improvements.*

Items under this head should be given attention at once. They are all equally important and the order follows the description of buildings in early part of this report.

SCIENCE HALL.

(a) Construct partitions of brick, tile or plaster on metal lath at each floor to complete the enclosure of the stairs. Provide automatic closing standard fire doors of ample size at each floor.

(b) Provide ample ventilation and a standard fire door at gasoline gas machine room in basement.

LIPPITT HALL.

Provide stair tower at the northeasterly corner of the building of ample size as an additional exit from the Assembly Hall and provide a fire escape of good design at the northwesterly corner with access available from stage.

(b) Reconstruct moving picture booth in accordance with specifications approved by Insurance interests.

EAST HALL.

(a) Construct a non-combustible and substantial partition across the corridor on each floor near one of the stairways and provide a standard fire door of ample size, in order to prevent the spread of fire from one stairway to the other and provide additional means of escape for the occupants.

(b) Provide partitions to cut off direct connection between basement bakery and kitchen with fire doors where needed.

8. *Fire department.*

(a) Some competent man should have charge of all fire protection equipment and should have regular monthly inspections made of all details with reports kept on file.

All features criticised should be given immediate attention and means provided for their correction or improvement.

(b) A fire brigade of at least two companies should be organized among the students and several opportunities given each year to use fire streams and the other equipment. A spirit of competition should be developed and credit given for efficient service during drills.

(c) Notices giving instructions as to what to do in case of fire should be placed in frames in a conspicuous place in all buildings.

(d) Several inspections per year should be arranged to be made by experienced fire protection engineers connected with the insurance interests of the State. The reports of these inspections should be given careful consideration, all necessary matters provided for by immediate and vigorous action on the part of those responsible for the maintenance of the property.

9. *In general.*

The highest standards of order and neatness should be maintained throughout. The accumulation of waste paper should be removed frequently from the buildings and either burned or baled for sale in some safe place. "No Smoking" signs should be placed where necessary and the rule should be particularly enforced at the stables and hay sheds.

The What Cheer Mutual Fire Insurance Company of Providence offers the services of its Engineering Department for advice in carrying out the above recommendations, and all plans should be submitted for approval before work is installed.

Respectfully submitted,

GEORGE F. HILLER,

Vice President and Engineer.